



CITY OF JERSEY CITY

Office of the Corporation Counsel

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Jerramiah Healy, Mayor

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August 22, 2012

Mr. Haiyesh Shah
State of New Jersey
Department of Environmental Protection
Bureau of Case Management
Floor 5 West
P.O. Box 420 Mail Code 401-05F
401 East State Street
Trenton, NJ 08625-0420

Re: PJP LANDFILL (Jersey City Recreational Portion, formerly handled by Waste Management)
400 Sip Avenue, Routes 1&9 South, Jersey City, Hudson County, NJ
Block 1627, Lots 1.P, 2.A, 3.B & 5.A
Block 1639A, Lots 1.c, 3, 4, 4.C, 6.A & 7
NJDEP PI Number 216727

Dear Mr. Shah:

The City of Jersey City is hereby providing the City's Final Operation and Maintenance Plan for the PJP Landfill site as required by the May 18, 2010 Memorandum of Understanding. This final plan consists of Addendum 3 to the preliminary Operations and Maintenance Plan prepared by Golder Associates on behalf of Waste Management, Inc.; revised Table 2a, Table 3a and Figure OM-2 revision 1; and the Golder Associates preliminary Operations and Maintenance Plan. The plan is required to be submitted to the Department on or before August 27, 2012.

The City of Jersey City confirms that compliance with the final Operations and Maintenance plan for the site will be certified by a Licensed Site Remediation Professional (LSRP) as required by the Site Remediation Reform Act. The City is currently in the process of retaining a LSRP to provide the necessary certifications for all reports required by the implementation of the plan. The appropriate forms that need to be submitted coincident with the plan submittal will be provided separately to the Department on or before September 14, 2012.

As an integral part of the submission of this Final Operations and Maintenance Plan, a schedule for completion of the items noted in your letter of May 18, 2012 to Mr. David Moreira of Waste Management, Inc., is provided as follows:

Final Deed Notice – The City of Jersey City has been the title holder to the property since 2010. The final deed notice is being completed and will be provided to the Department on or before September 10, 2012.

Vapor Intrusion Risk Assessment – Groundwater data from MW-18S and MW-11S will be collected in September and December of 2012 as part of the quarterly monitoring activities. Based upon the data collected, vapor intrusion risk will be assessed and provided to the Department on or before March 31, 2013. Subsequent assessments will be done on a schedule consistent with the requirements of NJAC7:26E-1.18.

Environmental Monitoring – Groundwater, surface water and passive gas vent monitoring will be done quarterly commencing in September 2012. Groundwater quality monitoring data and head elevation data will be collected from all wells and evaluated as part of the quarterly groundwater monitoring program. Quarterly monitoring will be coordinated with monitoring conducted by Prologis on the adjacent property to the site.

Removal of Gas Vents – The removal of six passive gas vents determined no longer to be necessary will be initiated in October of 2012 and a completion report provided to the Department on or before December 31, 2012.

CEA and WRA Evaluation --Classification Exemption Area (CEA) and Well Restruction Area (WRA) will be re-evaluated after the first two quarterly monitoring events in September and December 2012 have been completed. The results of the CEA and WRA re-evaluation will be provided to the Department on or before March 31, 2013. Subsequent evaluations will be done on a schedule consistent with NJAC7:26E-8.3(s).

The City looks forward to receiving approval of this Operation and Maintenance Plan and initiating the inspection maintenance and monitoring activities at the site. The City is also interested in vigorously pursuing petitioning the USEPA for the deletion of the remediated portion of the site from the National Priorities List of Superfund and recognizes that final approval of the Operations and Maintenance Plan is a prerequisite for that petition.

Pursuant to NJAC 7:26E-1.5 and NJAC 7:26C-1.6, the following certification is provided:

"I certify, under penalty of law, that I have personally examined and am familiar with the information submitted herein and all attached documents, and that based on my inquiry of the individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

The City appreciates the Department's cooperation and assistance with this important project.

Very truly yours,



**WILLIAM MATSIKLOUDIS
CORPORATION COUNSEL**

Subscribed and sworn to before me this
22 AUG Day of August, 2012.



KIM NIEVES
A Notary Public Of New Jersey
My Commission Expires May 30, 2018
WM/igp

c: Renee Goldblatt, NJEPA
Gerry Spiesbach, Arcadis

ADDENDUM NO. 3
TO
OPERATION AND MAINTENANCE PLAN

CITY OF JERSEY CITY, NEW JERSEY

PJP LANDFILL (Jersey City Recreational Portion, formerly handled by Waste Management)
400 Sip Avenue, Routes 1&9 South, Jersey City, Hudson County, NJ
Block 1627, Lots 1.P, 2.A, 3.B &5.A
Block 1639A, Lots 1.c, 3, 4, 4.C, 6.A &7
NJDEP PI Number 216727

August 21, 2012

This Addendum shall be part of the Operation and Maintenance Plan for the above referenced project. The following additions to and modifications of the Operation and Maintenance Plan shall be included in, and become a part of, the Operation and Maintenance Plan initially prepared for construction of this project by Golder Associates, Inc. This Addendum No. 3 replaces and supersedes Addendum No. 2, dated May 15, 2012 and Addendum No. 1 dated November 20, 2009.

This Addendum No. 3 consists of:

<u>DESCRIPTION</u>	<u>PAGES</u>
• Addendum No. 3	A2-1 through A2-10
• Table 2a	
• Table 8a	
• Figure OM-2, Revision 1	
• Preliminary Operation and Maintenance Plan	

GENERAL

1. Cover Page Delete "Preliminary"
2. Section 1.0 Page 1, First Paragraph, after second sentence insert the following:

As required by the site Remediation Reform Act, a Licensed Site Remediation Professional (LSRP) will certify compliance with all elements of this Operations and Maintenance Plan.

3. Section 1.1 Page 1, Insert at end of first paragraph

This O&M Plan has been revised by Malcolm Pirnie to reflect the O&M responsibilities of Jersey City.

4. Section 2.1 Page 3, After the last sentence, insert the following:

Subsequent to NJDEP's approval of the Golder Associates, Inc. closure plan, Jersey City proposed to purchase and develop portions of the property, referred to as the RV Salvage, Truckstop and Junk Yard areas (Site), as a park that would include a variety of recreational facilities and parking. The existing NJDEP-approved closure plan, however, includes design features, notably the final closure grades, which would preclude the City's proposed development of the Site. The City retained Malcolm Pirnie, Inc. to develop a revised grading plan for the PJP Landfill closure that is compatible with the City's proposed end use. Other than the closure grades, the City proposed to retain all other NJDEP-approved closure design features, such as stormwater management, passive gas management, and geomembrane cap design. The NJDEP indicated that they would be receptive to allowing the City to redevelop the Site and construct on the landfill provided that environmentally equivalent closure is achieved.

The Closure Equivalency Engineering Report and associated engineering drawings were submitted to NJDEP in November 2009. NJDEP approved the equivalent closure design on February 5, 2010.

Hartz Mountain Industries, Inc. (Hartz Mountain) owns the property to the east of the RV Salvage area. The Hartz Mountain property includes a paved loading dock area on the west side. This paved area extends into the RV Salvage area at the shared property line. In August 2010, Hartz Mountain approached the City about obtaining an easement in order to retain the pavement at its current location, which will allow for continued use of the loading docks. The requested easement area is approximately 30 feet wide by 340 feet long.

In addition, during the course of construction, it was discovered that the existing toe-of-slope in the RV Salvage area along the Hackensack River is located approximately five feet to the east of the toe-of-slope location used to develop the equivalency design. Further, the existing grades along the river are significantly steeper than was originally anticipated. Because of this, the side slope in this area needed to be cut back and the closure contours redeveloped in order to achieve 3V:1H grading.

Accordingly, the equivalent closure design was modified in order to accommodate the proposed easement and to address field conditions along the river.

Closure construction commenced on August 16, 2010. The NJDEP conditionally approved the closure on March 21, 2012.

5. Section 2.2 Page 4, Delete paragraph after "Landfill Cover System" in its entirety and insert the following:

The area capped at the Site includes the RV Salvage, Truckstop and Junk Yard areas, not including the active gas station portion of the Truckstop area at the east end of the property. There are four cap profiles included in the PJP Landfill Closure. There were no proposed alterations to the approved soil and geomembrane cap profile for the majority of the site not below proposed parking areas, roadways, walkways, and recreational fields and courts. A modified but equivalent cap system was constructed beneath these areas. The four cap profiles are designated as Type I, Type II, Type III, and Type IV.

Type I Cap, is the same as that previously approved by NJDEP, and was constructed on all portions of the site not below proposed parking areas, roadways, walkways, or recreational fields and courts, and consists of (from top to bottom) the following:

- *Vegetative Layer: A 6-inch (min.) thick soil layer capable of sustaining vegetation, seeded and fertilized to establish a vegetative cover that will help reduce erosion;*
- *Cover Layer: A 12-inch (min.) soil layer to provide protective cover above the geomembrane;*
- *Drainage Layer: A geocomposite drainage layer, consisting of geonet embedded between two non-woven geotextiles, which may be heat-bonded to the geonet. The geocomposite will provide filtration and lateral drainage for infiltration;*
- *Geomembrane Layer: A 40 mil geomembrane low permeable liner; and,*
- *Cushion Layer: A 6-inch thick layer of cap cushion required for a stable base for subsequent cap system component.*

Type II Cap, a modified but equivalent cap system, was constructed beneath the proposed parking lot areas and roads. This equivalent capping system, replaces the vegetative layer of the Type I Cap with a surface layer comprised of asphalt pavement, including a pavement subbase and additional geogrid stabilization. The Type II Cap system consists of (from top to bottom) the following:

- *Asphalt Pavement Surface Layer: A layer of asphalt paving that will serve as parking areas and will help reduce erosion. The asphalt paving profile will consist of:
 - 4-inch thick layer of asphalt paving;
 - 6-inch (min.) thick layer of dense graded aggregate (DGA) subbase;
 - Geogrid embedded in the DGA layer for additional stabilization and strength;*
- *Cover Layer: A 8-inch soil layer to provide protective cover above the geomembrane;*
- *Drainage Layer: A geocomposite drainage layer, consisting of geonet embedded between two non-woven geotextiles, which may be heat-bonded to the geonet. The geocomposite will provide lateral drainage from infiltration of precipitation;*
- *Geomembrane Layer: A 40 mil geomembrane low permeable liner; and,*
- *Cushion Layer: A 6-inch thick layer of cap cushion required for a stable base for subsequent cap system component.*

Asphalt installation in some areas will be deferred to a later, post-closure date. In such areas, the 4-inch thick asphalt layer was replaced with an equal thickness of subbase DGA. The asphalt pavement will be placed directly on top of this subbase when the City is prepared for further development of the site. The Type II Cap system with deferred asphalt installation consists of (from top to bottom) the following:

- *Asphalt Pavement Subbase Surface Layer:* *A layer of DGA that will serve as a subbase for future asphalt parking areas and will help reduce erosion. The subbase surface layer profile will consist of:*
 - *10-inch (min.) thick layer of DGA subbase;*
 - *Geogrid embedded in the DGA layer for additional subbase stabilization and strength;*
 - *Cover Layer:* *A 8-inch soil layer to provide protective cover above the geomembrane;*
 - *Drainage Layer:* *A geocomposite drainage layer, consisting of geonet embedded between two non-woven geotextiles, which are heat-bonded to the geonet. The geocomposite will provide lateral drainage from infiltration of precipitation;*
 - *Geomembrane Layer:* *A 40 mil geomembrane low permeable liner; and,*
- Cushion Layer:* *A 6-inch thick layer of cap cushion required for a stable protective base below the geomembrane of the cap system.*

Type III Cap, a modified but equivalent cap system, was constructed beneath the proposed walkways and jogging trails. This equivalent capping system, replaces the vegetative layer of the Type I Cap with a surface layer comprised of cinder and gravel materials for walkways and jogging trails. The Type III system consists of (from top to bottom) the following:

- *Cinder/Gravel Surface Layer:* *A 4-inch thick layer of cinder/gravel that will serve as walking paths and jogging trails and will help reduce erosion;*
- *Cover Layer:* *A 14-inch (min.) soil layer to provide protective cover above the geomembrane;*
- *Drainage Layer:* *A geocomposite drainage layer, consisting of geonet embedded between two non-woven geotextiles, which may be heat-bonded to the geonet. The geocomposite will provide filtration and lateral drainage for infiltration;*
- *Geomembrane Layer:* *A 40 mil geomembrane low permeable liner; and,*
- *Cushion Layer:* *A 6-inch thick layer of cap cushion required for a stable base for subsequent cap system component.*

Type IV Cap, a modified but equivalent cap system, was constructed beneath the proposed Hartz Mountain easement. This equivalent capping system, referred to as Type IV Cap, replaces the vegetative layer of the Type I Cap with a surface layer comprised of asphalt pavement suitable for truck traffic, including a pavement subbase and a geogrid. The Type IV Cap system consists of (from top to bottom) the following:

- Asphalt Pavement Surface Layer: *A layer of asphalt paving that will serve as parking areas and will help reduce erosion. The asphalt paving profile will consist of:*
 - *6-inch thick layer of asphalt paving;*
 - *6-inch (min.) thick layer of dense graded aggregate (DGA) subbase which also serves as a drainage layer;*
 - *Geogrid embedded in the DGA/recycled material equivalent layer for additional subbase stabilization and strength;*
- Geotextile Layer: *A 10 oz/sy geotextile layer to provide protective cover above the geomembrane;*
- Geomembrane Layer: *A 40 mil geomembrane low permeable liner. The geomembrane will be double sided textured on slopes greater than 2 percent. On slopes 2 percent or less, the geomembrane interface will be capable of providing shear strength for stability as demonstrated by interface shear strength testing; and,*
- Cushion Layer: *A 12-inch thick layer of cap cushion required for a stable protective base below the geomembrane of the cap system.*

The asphalt pavement surface layer of the Type IV Cap system was tied into the existing asphaltic pavement on the adjacent Hartz Mountain property to the east.

6. Section 2.2 Page 5, Delete paragraph after “Site Security System” in its entirety and insert the following:

The City has purchased the Site from the previous owner; consequently, all coordination of access will be through the City.

7. Section 2.3 Page 5, Revise the first sentence as follows:

The Final (100%) Remedial Design by Golder Associates was submitted to the NJDEP in March 2007, and was subsequently approved.

8. Section 2.3 Page 5, After the last sentence, add the following:

Malcolm Pirnie, Inc. subsequently developed an Equivalent Closure Design compatible with the City’s proposed end use for the Site. The Closure Equivalency Engineering Report presents the design rational for the equivalent closure design, presents elements of the design that differ from the previously approved design, and identifies previously approved design details that are still applicable.

9. Section 3.1 Page 6, through entire section, replace “CCS” with “City”

10. Section 3.2 Page 6-7, through entire section, replace “CCS” with “City”

11. Section 4.1.1 Page 9, After paragraph entitled “Vegetative Cover,” insert the following:

Recreational Fields: *The fields will be inspected for erosion and wear and tear. The*

cover will be inspected for breaks in the soil due to differential settlement or destruction. Other damages to the cover system or recreational fields will also be noted.

Parking Areas: The parking areas will be inspected for damage. The cover will be inspected for breaks in the parking area due to differential settlement. Any damage, cracks, or fissures will be noted.

Walkways: The walkways will be inspected for damage. The cover will be inspected for breaks in the walkways due to differential settlement. Any damage, cracks, or fissures will be noted.

Hartz Mountain Easement: The paved Hartz Mountain Easement area will be inspected for damage. The cover will be inspected for breaks in the pavement due to differential settlement and surface deterioration due to truck traffic. Any damage, cracks, or fissures will be noted.

12. Section 4.1.1 Page 9, Third Paragraph, after the second sentence, insert the following:

The cover system will be inspected monthly for the first year. Subsequent inspection frequency will be based upon the results of the first year's monthly inspections.

13. Section 4.1.2 Page 10, After first paragraph, second item, add the following:

3. *Inspection of all fields for differential settlement, biannually,*
4. *Inspection of all paved surfaces for differential settlement and surface deterioration, biannually,*
5. *Inspection of all walkways for cracks and differential settlement, biannually.*

14. Section 4.2.1 Page 11, Fourth Paragraph, after the second sentence, insert the following:

The surface water control system will be inspected monthly for the first year. Subsequent inspection frequency will be based upon the results of the first year's monthly inspections.

15. Section 4.3.1 Page 13, Fourth Paragraph, after the second sentence, insert the following:

The Sip Avenue Ditch will be inspected monthly for the first year. Subsequent inspection frequency will be based upon the results of the first year's monthly inspections.

16. Section 4.4.1 Page 14, Second Paragraph, after the second sentence, insert the following:

The Riverbank will be inspected monthly for the first year. Subsequent inspection frequency will be based upon the results of the first year's monthly inspections.

17. Section 4.5.1 Page 15, Delete the first sentence and insert the following:

The gas collection system consists of eight (8) passive gas vents connected by gravel filled trenches with 4-inch diameter slotted corrugated polyethylene pipe collection header. A carbon canister is installed on each vent for volatile organic compound (VOC) and semi-volatile organic compound (SVOC) emissions control.

18. Section 4.5.1 Page 15, Fourth Paragraph, after the first sentence, insert the following:

The passive gas venting system will be inspected monthly for the first year and during each monitoring event.

19. Section 4.5.2 Page 15, Delete the first sentence of the Maintenance Plan section.

20. Section 4.5.2 Page 16, After the fourth item, add the following:

Replacement and disposal of carbon canisters, as recommended by the manufacturer

21. Section 4.5.2 Page 16, after Section 4.5.2, add a new Section 4.5.3 as follows:

4.5.3 Vent Removal

There are currently six (6) passive gas vents, designated as vent Nos. 44 through 49, located to the west of the former Junk Yard area, just south of the Sip Avenue Ditch. The NJDEP determined that these vents are no longer necessary and, per NJDEP correspondence dated March 5, 2012, may be closed. The anticipated tasks associated with removal of these vents are as follows:

- 1. Placing the appropriate backfill material into the well to a depth of 2-feet below the ground surface.*
- 2. Removing, at a minimum, the top section of the well riser to a depth of 2 feet below ground surface and installing a PVC cap.*
- 3. Restoring the landfill cap profile to grade.*

The City shall obtain approval of the vent removal protocol from the NJDEP Air Pollution Control Permit Program prior to initiating any vent removal activities. Removal tasks performed will be documented and a gas vent closure report will be provided to NJDEP.

22. Section 4.6.1 Page 16, Third Paragraph, after the third sentence, insert the following:

The site security system will be inspected monthly for the first year. Subsequent inspection frequency will be based upon the results of the first year's monthly inspections.

23. Section 4.7.1 Page 17, First Paragraph, in second sentence, replace "10" with "six (6)".

24. Section 4.7.1 Pa 18, Fourth Paragraph, after the first sentence, insert the following:
- The groundwater monitoring wells will be inspected monthly for the first year. Subsequent inspection frequency will be based upon the results of the first year's monthly inspections.*
25. Section 5.0 Page 19, Second paragraph, Delete the third sentence in its entirety and replace with the following:
- All 8 gas vents will be monitored.*
26. Section 5.2 Page 19, After first sentence, replace "ten (10)" with "six (6)"
27. Section 5.2 Page 19, Delete the second and third sentences in their entirety, replace with the following:
- The six monitoring wells include MW-6S, MW-7S, MW-10S, MW-11S, MW-12S, and MW-18S. The locations of these wells are shown on Figure 2a.*
28. Section 5.2 Page 19, Add a new paragraph after the first paragraph as follows:
- Groundwater data from MW-18S will be used to evaluate whether there is a potential for vapor intrusion to receptors at the adjacent Hartz Mountain facility to the east. The groundwater data will also be used to re-evaluate the established Classification Exception Area (CEA and Well Restriction Area (WRA), and to determine whether the CEA and WRA require modification consistent with NJAC 7:26E-8.3(d).*
29. Section 5.2.2 Page 21, First and third sentences, replace "10" with "6".
30. Section 5.2.2 Page 21, Second sentence, replace "Figure 2" with "Figure 2a".
31. Section 5.3 Page 21, First sentence; after the word "collected" add "from sample locations SW01 through SW05."
32. Section 5.3 Page 21, Second sentence, replace "Figure 2" with "Figure 2a".
33. Section 5.6 Page 23, Delete the third sentence in its entirety and insert the following:
- Explosive gases will be monitored annually in the 8 passive gas vents located on Site.*
34. Section 5.6 Page 23, Last sentence, replace "CCS" with "Jersey City."

35. Section 6.0 Pages 24, Replace second paragraph with the following:

*Site records will be kept by Jersey City.
City of Jersey City
Division of Parks and Forestry
Public Works Complex
575 Route 440
Jersey City, NJ 07305*

36. Section 6.1 Page 24, First sentence; Replace “CCS” with “Jersey City”

37. Section 6.2 Page 24, Last sentence; Replace “CCS” with “Jersey City”

38. Section 6.3 Page 24, First sentence; Replace “CCS” with “Jersey City”

39. Section 6.4 Page 25, First sentence; Replace “CCS” with “Jersey City”; Replace “verbal notification of the incident to the NJDEP” to “*verbal and written notification to the NJDEP.*”

40. Section 6.4 Page 25, after Section 6.4, add a new Section 6.5 as follows:

Section 6.5 Institutional Controls

Institutional controls have been implemented at the Site to prevent the use or hydrologic alteration of groundwater throughout the site; to prevent direct contact with, or exposure to, contaminated soils at the site; and to prevent any harm to the cover system on the landfill. To achieve these ends, the use of deed restrictions is necessary and practical.

Accordingly, the City is preparing a Deed Notice which will be recorded in the Registry of Deeds, as is required by the Record of Decision (ROD) for the Site. Deed restrictions will inform future purchasers that the Site properties are within a Superfund Site and that cap disruption or soil excavation may not be undertaken without NJDEP approval. The deed notice also identifies the remedial systems that require protection. The existence of the CEA/WRA is also noted. A draft Deed Notice is presented in Appendix OMC.

41. Section 7.1 Page 26, Entire Section; Replace “CCS” with “Jersey City”

42. Section 7.2 Pages 28-29, After item 7 insert the following:

8. City of Jersey City – to be determined

43. Tables Remove Table 2 in its entirety and replace with Table 2a

44. Tables Remove Table 8 in its entirety and replace with Table 8a

45. Figures Remove Figure OM-2 in its entirety and replace with Figure OM-2, Revision 1.
46. Appendices After Appendix OMB, add Appendix OMC Draft Deed Notice

++ END OF ADDENDUM NO. 3 ++

TABLE 2a
SUMMARY OF DATA QUALITY OBJECTIVES
PJP LANDFILL ENVIRONMENTAL MONITORING PLAN

ACTIVITY	NUMBER OF SAMPLING POINTS	PARAMETERS OF INTEREST	OBJECTIVES	DQO LEVEL
Long-Term Groundwater Monitoring	5 5 5 5	TCL Volatiles TCL Semi-Volatiles (semi-annual) Unfiltered TAL Metals Total suspended solids	Provide water quality data to evaluate benefit of remedy implementation and constituent transport to adjacent surface water bodies.	Definitive
Long-Term Surface Water Monitoring	5	TCL Volatiles TCL Semi-Volatiles (semi-annual) Filtered and Unfiltered TAL Metals Total suspended solids Hardness	Provide water quality data to evaluate potential constituent transport from site groundwater.	Definitive
Passive Landfill Vent Gas	8 passive gas vents	Total Volatile Organic Compounds (PID) Explosive gasses (%LEL) Gas Flow Rate	To evaluate potential offsite explosive gas migration.	Field Screening
Perimeter Landfill Gas Probe	TBD	% LEL	To evaluate subsurface gas migration after capping.	Field Screening
Wetland Mitigation Vegetation ⁽¹⁾	TBD	Survival	Greater than 85% desirable wetland vegetation cover.	Field Screening

TBD – To be determined

All monitoring will be on a quarterly basis except semi-volatile organics in groundwater and surface water, that will be on a semi-annual basis

⁽¹⁾ Inspections will occur twice per year for the first two years then each spring for three additional years.

TABLE 8a
TARGET ANALYTES, ANALYTICAL METHODS, AND QUALITY ASSURANCE SAMPLES
PJP LANDFILL ENVIRONMENTAL MONITORING PLAN

Long-Term Groundwater Monitoring Program

PARAMETERS	METHODOLOGY	NUMBER OF SAMPLES	TYPES OF SAMPLES
TCL Volatiles	SW846 8260B	6 ⁽¹⁾ 2 ⁽²⁾ 2 ⁽²⁾ 2 ⁽²⁾ 1 per day ⁽²⁾	Primary Field Duplicates MS MSD Trip Blanks
TCL Semi-Volatiles (semi-annual basis only)	SW846 8270C	6 ⁽¹⁾ 2 ⁽²⁾ 2 ⁽²⁾ 2 ⁽²⁾	Primary Field Duplicates MS MSD
TAL Metals (unfiltered)	SW-846 6010 and 7000 series	6 ⁽¹⁾ 2 ⁽²⁾ 2 ⁽²⁾ 2 ⁽²⁾	Primary Field Duplicates MS Laboratory Duplicate
Total Suspended Solids	USEPA 160.2 ⁽³⁾	6 ⁽¹⁾ 2 ⁽²⁾ 2 ⁽²⁾	Primary Field Duplicates Laboratory Control Sample

Long-Term Surface Water Monitoring Program

PARAMETERS	METHODOLOGY	NUMBER OF SAMPLES	TYPES OF SAMPLES
TCL Volatiles	SW846 8260B	5 ⁽¹⁾ 1 ⁽²⁾ 1 ⁽²⁾ 1 ⁽²⁾ 1 per day ⁽²⁾	Primary Field Duplicates MS MSD Trip Blanks
TCL Semi-Volatiles (semi-annual basis only)	SW846 8270C	5 ⁽¹⁾ 1 ⁽²⁾ 1 ⁽²⁾ 1 ⁽²⁾	Primary Field Duplicates MS MSD
TAL Metals (filtered and unfiltered)	SW-846 6010 and 7000 series	10 ⁽¹⁾ 2 ⁽²⁾ 2 ⁽²⁾ 2 ⁽²⁾ 1 ⁽²⁾	Primary Field Duplicates MS Laboratory Duplicate Field Rinsate Blanks (filtered sample only)
Hardness	6010 (calculated)	5 ⁽¹⁾ 1 ⁽²⁾	Primary Field Duplicates

Notes:

- (1) Represents the number of primary samples including background samples.
- (2) The number of MS/MSD samples is dependent upon sampling schedule which may be impacted by weather, field conditions or access issues. Each type of QA/QC sample will be collected at a rate of one per twenty primary samples or two per monitoring event, whichever is greater.
- (3) See Table 9



LEGEND

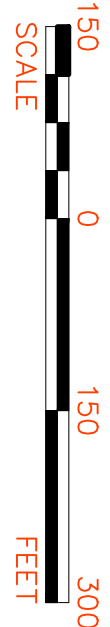
- APPROXIMATE SITE BOUNDARY AS DEFINED IN ADMINISTRATIVE CONSENT ORDER, 1997 (AMENDED JUNE 2000)
- EXISTING ACCESS ROAD
- FENCE
- GROUNDWATER MONITORING WELL LOCATION
- SURFACE WATER MONITORING LOCATION
- PASSIVE GAS VENT LOCATION

NOTES

- 1.) EXISTING CONDITIONS IN SOME AREAS MAY HAVE CHANGED AND WILL BE UPDATED AT THE TIME OF CONTRACTOR BIDDING.
- 2.) ONLY SHALLOW "S" SERIES WELLS ARE SHOWN. DEEP OVERBURDEN "D" SERIES WELLS EXIST AT LOCATIONS MW-1, MW-4, MW-6 AND MW-8.
- 3.) THE MONITORING PLAN WILL INCLUDE MONITORING OF SELECTED EXISTING VENTS WITHIN THE IRM CAP, AS WELL AS PROPOSED VENTS IN OTHER AREAS OF THE SITE.
- 4.) THE IRM GAS VENTS THAT ARE SHOWN WERE SELECTED FOR MONITORING DURING THE PDI.
- 5.) THE NEW GAS VENTS WILL BE MONITORED FOR EXPLOSIVE GAS CONCENTRATIONS.

REFERENCES

1.) BASE TOPOGRAPHY PREPARED BY JAMES M. STEWART, INC., CAD0 FILE No. 1886-00, DATED 11/02/98.



PROJECT			REVISION DESCRIPTION			T.I.	J.M.	J.M.
REV	DATE	DES				CADD	CHK	REV
1	5/16/12	JMJ	ADJUSTED MONITORING LOCATIONS					

PJP LANDFILL
FINAL 100% DESIGN REPORT
JERSEY CITY, HUDSON COUNTY, NEW JERSEY

ENVIRONMENTAL MONITORING LOCATIONS

PROJECT No. 003-6004			FILE No. 0035004R063		
DESIGN	CBM	04/03/07	SCALE	AS SHOWN	REV. 0
CADD	GLS	04/03/07			
CHECK	CBM	04/03/07			
REVIEW	MEC	04/03/07			



FIGURE OM-2

Operations & Maintenance Plan

Golder Associates Inc.

200 Century Parkway, Suite C
Mt. Laurel, NJ 08054
Tel: (856) 793-2005
Fax: (856) 793-2006
www.golder.com



PRELIMINARY
OPERATION & MAINTENANCE PLAN
PJP LANDFILL SITE
HUDSON COUNTY, NEW JERSEY

Prepared for:

CWM Chemical Services, L.L.C.
and
Waste Management of New Jersey, Inc. (WMNJ)
"Collectively referred to as CCS"

Prepared by:

Golder Associates Inc.
200 Century Parkway, Suite C
Mt. Laurel, NJ 08054

APPROVED:

CCS

Authorized Representative

Date

CITY OF JERSEY CITY

Authorized Representative

Date

DISTRIBUTION:

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Project No.: 003-6004-002

TABLE OF CONTENTS

Table of Contents	i
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Acronyms

<u>SECTION</u>	<u>PAGE</u>
1.0 INTRODUCTION.....	1
2.0 Site Background.....	2
2.1 Background/Site Description	2
2.2 Remedial Systems	3
2.3 Remedial Design	5
3.0 POST-CLOSURE MANAGEMENT STRUCTURE.....	6
3.1 Responsibilities	6
3.2 Training	6
4.0 INSPECTION AND MAINTENANCE PLAN	8
4.1 Landfill Cover System.....	9
4.1.1 Inspection Plan	9
4.1.2 Maintenance Plan	10
4.2 Surface Water Control System	10
4.2.1 Inspection Plan	10
4.2.2 Maintenance Plan	11
4.3 Sip Avenue Ditch	12
4.3.1 Inspection Plan	12
4.3.2 Maintenance Plan	13
4.4 Hackensack River Bank Erosion	14
4.4.1 Inspection Plan	14
4.4.2 Maintenance Plan	14
4.5 Passive Gas Venting System	15
4.5.1 Inspection Plan	15
4.5.2 Maintenance Plan	15
4.6 Site Security System.....	16
4.6.1 Inspection Plan	16
4.6.2 Maintenance Plan	16
4.7 Monitoring System.....	17
4.7.1 Inspection Plan	17
4.7.2 Maintenance Plan	18
5.0 ENVIRONMENTAL MONITORING PLAN	19
5.1 Purpose	19
5.2 Groundwater Monitoring.....	19
5.2.1 Groundwater Sampling Procedures.....	20
5.2.2 Groundwater Level Measurements.....	21
5.3 Surface Water Monitoring.....	21
5.4 Field Measurements	22
5.5 Schedule	22

5.6	Gas Monitoring	23
6.0	REPORTING AND RECORDKEEPING	24
6.1	Inspection Reporting	24
6.2	Maintenance Reporting	24
6.3	Monitoring Reporting	24
6.4	Safety Reporting	25
7.0	EMERGENCY PLAN	26
7.1	Organizational Structure and Responsibilities	26
7.2	Emergency Services	28
7.3	Evacuation Plan	29
7.4	Amendments to the Safety Plan	30
	7.4.1 Alternate Operation and Maintenance (Systems Failure)	30
	7.4.2 Amendments to the Emergency Plan	30
7.5	Plan Modification Procedures	30
8.0	REFERENCES	31

In Order
Following
Page 33

LIST OF TABLES

Table 1	Project Personnel
Table 2	Summary of Data Quality Objectives
Table 3	Post-Closure Annual Inspection Form
Table 4	River Bank Erosion Protection Inspection Form
Table 5	Monitoring Well Post-Closure Inspection Form
Table 6	Post-Closure Maintenance/Repair Form
Table 7	Emergency Notification Record
Table 8	Target Analytes, Analytical Methods, and Quality Assurance Samples
Table 9	PARCC Data for Aqueous Samples
Table 10	Laboratory Accuracy and Precision Criteria for Aqueous Samples
Table 11	Analytical Methods, Sample Containers, Preservation and Analytical Hold Times for Aqueous Samples

LIST OF FIGURES

Figure OM-1	Site Location
Figure OM-2	Environmental Monitoring Locations

LIST OF APPENDICES

Appendix OMA	Sampling and Analysis Plan
Appendix OMB	Health and Safety/Contingency Requirements for Operations and Maintenance Activities

ACRONYMS

CWM Chemical Services, L.L.C.	CCSL
CWM Chemical Services, L.L.C. and Waste Management of New Jersey, Inc.	CCS
Construction Quality Assurance	CQA
Construction Quality Assurance Plan	CQAP
Erosion & Sedimentation Control	E&S
Final (100%) Design Report	FDR
Golder Associates Inc.	Golder
Hazardous Air Pollutant	HAP
Health and Safety Contingency Plan	HASCP
High Density Polyethylene	HDPE
Hydrologic Evaluation of Landfill Performance	HELP
Intermediate (65%) Design Report	IDR
Lower Explosive Limit	LEL
Landfill Gas	LFG
Non-Methane Organic Compound	NMOC
Operation and Maintenance	O&M
Operation, Monitoring and Maintenance	OM&M
National Priorities List	NPL
New Jersey Department of Environmental Protection	NJDEP
Personal Protection Equipment	PPE
Photoionization Detector	PID
PJP Landfill Site	Site
Pre-Design Investigation	PDI
Pre-Final (90%) Design Report	PFDR
Preliminary Design Report	PDR
Poly Vinyl Chloride	PVC
Radius of Influence	ROI
Record of Decision	ROD
Remedial Action	RA
Remedial Action Contractor	RAC
Remedial Design Work Plan	RDWP
Self-Contained Breathing Apparatus	SCBA
Statement of Work	SOW
Tons Per Year	TPY
United States Environmental Protection Agency	USEPA
Universal Soil Loss Equation	USLE
Volatile Organic Compounds	VOCs
Waste Management of New Jersey, Inc.	WMNJ/CCS

1.0 INTRODUCTION

This Preliminary Operation and Maintenance Plan (O&M Plan) for the PJP Landfill Site (Site) in Hudson County, New Jersey has been prepared in accordance with Section VII.D of the Statement of Work (SOW) and Section 5.6.2 of the Remedial Design Work Plan (RDWP). This O&M Plan has been prepared by Golder Associates Inc. (Golder) on behalf of CWM Chemical Services, L.L.C. (CCSL) and Waste Management of New Jersey, Inc. (WMNJ/CCS), collectively referred to herein as CCS, and defines the O&M responsibilities of CCS during the post-closure care period for the remedy.

The SOW requires that the O&M Plan be submitted within ninety (90) calendar days of the completion of the Remedial Action construction.

This O&M Plan has been prepared assuming that Remedial Action construction is complete. It will be amended as necessary based upon edits to the FDR and upon any as-built modifications during Remedial Action construction.

This O&M Plan is composed of the following major elements:

- A Site Management Plan (SMP), including O&M management structure, reporting, recordkeeping, and safety;
- O&M Inspection Activities;
- O&M Environmental Monitoring Activities; and,
- O&M Emergency Response Procedures.

This O&M Plan is intended to be flexible to allow for modifications based on conditions encountered during operation and maintenance activities. The following subsections briefly describe the Site background and existing conditions.

2.0 SITE BACKGROUND

2.1 Background/Site Description

The Site description and history presented herein is based on information presented in the Record of Decision (ROD) (USEPA, September 28, 1995).

The PJP Landfill Site is an inactive landfill located at 400 Sip Avenue, Jersey City, in Hudson County, New Jersey, as shown on Figure 1. The Site is bounded on the north and west by the Hackensack River and on the southeast by Truck Routes 1 and 9. A recycling facility and warehouse border the northeast side of the Site, and the southwest side of the Site is boarded by several commercial trucking terminals. The landfill Site occupies approximately 87 acres, of which 45 acres were previously remediated and capped in May 1986. This capped area is known as the IRM area. The Pulaski Skyway, an elevated highway, passes over the Site. The Sip Avenue Ditch bisects the Site and transports runoff from the Site and Jersey City storm water/sewer into the Hackensack River.

The Site was originally a salt meadow. In 1932, part of the Site was used in the construction of the Pulaski Skyway. In 1968, the Site began operations as a commercial landfill that accepted chemical and industrial wastes. Although there were allegations of illegal dumping until 1984, the Site is believed to have been inactive as a solid waste disposal facility since 1974 (ICF, 1990).

In July 1973, the New Jersey Department of Transportation (NJDOT) uncovered steel and plastic drums containing chemicals under the Pulaski Skyway. From 1970 to 1985, frequent occurrences of fires in a 45-acre area (now capped and termed the "IRM Area") were reported. These fires were attributed to spontaneous combustion of buried wastes and decomposition of landfill materials. In December 1982, the Site was placed on the EPA's National Priorities List (NPL). The completion of the remediation of the IRM area was in May 1986.

A remedial investigation and feasibility study (RI/FS) was conducted over the entire 87-acre site for the New Jersey Department of Environmental Protection (NJDEP) from 1988 to 1993. Additional groundwater and surface water investigations, including toxicity testing, were completed in 1993. Based on the results of the RI/FS, the risk assessment, and the 1993 monitoring event, the NJDEP selected a remedy as presented in the ROD dated September 28, 1995. CCS entered into an ACO and

ACO Amendment with the NJDEP, effective June 27, 2000, to implement the remedy selected in the ROD. Major components of the selected remedy include the following components:

- Removal of all known and suspected buried drums and visibly contaminated soils;
- Capping the remaining landfill area of Site with a multi-layer, modified solid waste type cap;
- Extend the existing gravel lined ditch around the perimeter of the Site to collect the surface water runoff;;
- Install a passive gas venting system;
- Site fencing and institutional controls;
- Periodic inspections of the IRM cover;
- Replace the Sip Avenue ditch with an alternate form of drainage;
- Quarterly ground water and surface water monitoring; and,
- Implementation of a wetlands assessment and restoration plan.

Several of the remedy components listed in the NJDEP Record of Decision (NJDEP, 1995) have been completed to date.

2.2 Remedial Systems

The primary remedial systems include:

- Landfill Cover System;
- Surface Water Drainage Control System;
- Lining of the Sip Avenue Ditch;
- River Bank Erosion Protection; and,
- Landfill Gas Venting System.

The following sections briefly describe each system:

Landfill Cover System

Areas of the landfill outside the IRM were capped as required in the ROD. The cap system consisted of a multi-layer, modified solid waste cap that consisted of the following components from top to bottom:

Vegetative Layer: a minimum 6-inch thick layer of soil capable of sustaining vegetation to be placed over the cover layer, seeded and fertilized to establish a vegetative cover that will help reduce erosion of the cap;

Cover Layer: as required to provide a minimum soil thickness of 12 inches above the geomembrane;

Drainage Layer: the drainage layer will consist of a geocomposite drainage layer, consisting of geonet embedded between two non-woven geotextiles, which may be heat-bonded to the geonet. The geocomposite will provide filtration and lateral drainage for infiltration;

Geomembrane Layer: a 40-mil thick geomembrane will be used. The geomembrane will function as an impermeable cap layer; and,

Cushion Layer: a minimum 6-inch thick layer of cap cushion material will be placed to attain the required slope and provide for a stable base for subsequent cap system components.

Surface Water Drainage Control System

A surface water drainage control system was constructed in the newly covered portions of the landfill. It consists of several grass and riprap lined ditches within and around the cap to collect and transport surface water runoff and discharge into the existing stormwater drainage ditches, including the IRM Perimeter Ditch, Sip Avenue Ditch, and the Hackensack River.

Sip Avenue Ditch

Existing sediments in the Sip Avenue Ditch were removed to a depth of approximately two feet. The entire length of the Sip Avenue Ditch was lined with a compacted structural fill subgrade below a cellular confinement system filled with soil up to the 100-year, 24-hour storm line (elevation 10). In addition, the Sip Avenue Ditch will be regraded to serve as a replacement ARPA for wetlands presently located on the Archdiocese property.

River Bank Erosion Protection

Erosion protection measures were constructed where river bank slopes and slopes along waterways required stabilization. The placement of the cellular confinement system and

bioengineered stability systems was provided to reduce erosion and promote the stability of the cap slopes.

Landfill Gas Venting System

A passive gas venting system was also constructed within the capped area to prevent the accumulation of LFG beneath the geomembrane cap. The LFG that will be vented from beneath the cap will dissipate to the atmosphere through these vents preventing pressure development under the geomembrane cap and maintaining cap integrity. The production of gas generation is expected to be low.

Site Security System

A site security system was also constructed within the capped area to prevent trespassing and encroachment of potential violators. The site security system consists of a 6-foot high chain link fence placed around the perimeter of the Site. Fence gates with locks are located at entrance roads entering the Site.

2.3 Remedial Design

The Final (100%) Remedial Design (FDR) for the Site was submitted to the NJDEP in March 2007. Volumes 1 and 2 of the FDR contained the design rationale and the proposed construction figures, along with the supporting appendices, technical specifications, and permit equivalency information.

3.0 POST-CLOSURE MANAGEMENT STRUCTURE

The responsibilities and authority of the parties involved during post-closure activities are presented in Section 3.1. Additional training requirements for those individuals directly participating in the inspection, maintenance and monitoring activities are discussed in Section 3.2.

3.1 Responsibilities

The CCS Project Manager will be responsible for ensuring the O&M Plan is properly implemented and the results are communicated directly to the NJDEP. The responsibilities of the CCS Representative include:

1. Coordination of inspection, maintenance and monitoring activities;
2. Review and submittal of required reports and maintaining Site records;
3. Coordination and supervision of specialty contractors;
4. Preparation of O&M budgets;
5. Ensuring properly trained staff are employed at the Site;
6. Acting as the Emergency Coordinator or appointing an Emergency Coordinator; and
7. Coordination with public agency personnel as required.

The NJDEP will be notified in writing of any change to the designated CCS Project Manager. CCS may choose to utilize the services of various contractors to implement aspects of this O&M Plan. Contractor(s) responsibilities may include:

1. Conducting routine inspections and maintenance;
2. Performing repair maintenance and corrective actions as necessary;
3. Environmental monitoring;
4. Report preparation; and,
5. Emergency response.

3.2 Training

All personnel on the Site performing inspection, operation, maintenance or monitoring activities must be properly trained for these activities. The CCS Project Manager and any subcontractors will be responsible for implementing and adhering to proper health and safety measures associated with these

tasks. The site-specific Health and Safety requirements included as Appendix OMB to this O&M Plan will be implemented by the CCS. The CCS Project Manager shall be experienced in the management and implementation of operations and maintenance procedures at landfills, including safety and emergency response procedures. The CCS Project Manager is responsible for ensuring that properly trained staff are employed to work at the Site and for the selection of any contractor(s).

Personnel performing intrusive work activities (e.g., excavations below the cap/cover for maintenance or repairs, well development, etc.) must be 40-hour OSHA Health and Safety trained and have proper regular re-training and medical monitoring in accordance with 29 CFR 1910 and 1926 and other applicable laws and regulations. Personnel performing routine inspections, operations, or maintenance in which exposures to potentially hazardous materials is unlikely (e.g., groundwater and surface water monitoring, etc.) will require 24-hour OSHA Health and Safety training and annual 8-hour refresher training. At a minimum, all personnel working on-site will be briefed regarding existing Site conditions. Personnel entering confined spaces must possess, at a minimum, the required 8-hour confined space training in addition to any other training requirements.

It will be the respective responsibility of CCS and subcontractors to ensure that all employees and agents adhere to applicable training, laws, regulations, and policies while on-site.

4.0 INSPECTION AND MAINTENANCE PLAN

The Inspection Plan will be used for routine inspections of the following components of the remedy in order to identify components requiring maintenance or repair:

1. Landfill cover system;
2. Surface water control system;
3. Sip Avenue Ditch;
4. Hackensack River bank;
5. Passive gas venting system;
6. Site security system; and,
7. Environmental monitoring system.

Guidelines for inspection of each of these components are presented in the following subsections. For each component, the following is described:

1. Purpose of the inspection;
2. Reasonably anticipated inspection items; and,
3. Inspection schedule.

The Maintenance Plan will be used for scheduled maintenance of components of the remedy to ensure the continued effectiveness of the remedial systems. Repair maintenance will be performed in a manner and with materials as close as possible to those used during initial construction of the component under repair, unless otherwise approved by NJDEP. Repairs will be carried out as soon as practical following discovery of the damage. If the repairs are significant such that the as-built drawings need to be modified, the maintenance report will include as-built drawings of the repairs certified by a Professional Engineer registered in the State of New Jersey.

4.1 Landfill Cover System

4.1.1 Inspection Plan

A multi-layer, modified solid waste cap cover system was constructed over the landfill as described in Section 2.2. Reasonably anticipated items which could impact the effectiveness of the cover system include the following:

1. Insufficient vegetation resulting in erosion of the cover material by storm water runoff and/or wind;
2. Animal burrows;
3. Cracks or fissures in the cover resulting from excessive differential settlement;
4. Unauthorized damage or disturbances by personnel and/or equipment;
5. Large weeds or woody species whose roots may penetrate the cover material; and,
6. Erosion of cover soil along the Sip Avenue Ditch or the Hackensack River due to storm events.

The inspection will involve a Site walkover to search for the occurrence of the above items, with special emphasis as described below.

Integrity of the Cover System:

The landfill cover will be inspected for erosion, such as gullies, particularly on slopes and other places where erosion is most likely to occur. The cover will also be inspected for breaks in the soil due to differential settlement or animal burrows. Other damage to the cover system will also be noted.

Vegetative Cover:

The vegetation will be inspected for density, type, and damage caused by animals, personnel, equipment, erosion, seepage, or gas migration. Areas with insufficient vegetation to prevent erosion (defined as having less than 80% coverage or having bare patches larger than one square yard) will be noted. Damaged, bare, or sparsely covered areas (as defined above) will be noted. Undesirable vegetation such as large weeds or woody species will be noted for removal.

Information gathered during the inspection of the cover system will be documented on the field inspection form shown on Table 3. The cover system will be inspected annually in the spring in order to assess damages from the freeze-thaw cycle and stormwater runoff, including snowmelt. Additional inspections will be performed as deemed appropriate by the CCS Project Manager.

Gravel access roads were installed throughout the Site to allow future access to river bank erosion protection areas and to facilitate operation and maintenance and monitoring of the groundwater and passive gas systems. The access roads must be maintained in order to allow inspection and maintenance of other constructed landfill features. Access roads are constructed with a 9-inch thick layer of either dense graded aggregate (DGA) or AASHTO No. 57 stone underlain by a woven geotextile.

4.1.2 Maintenance Plan

In order to ensure the continued effectiveness of the cover system, the following scheduled maintenance tasks will be performed:

1. Mowing of the vegetative cover annually, in the early summer; and,
2. Annual removal of any debris, large weeds, and woody plant species from the cover.

Anticipated repair maintenance tasks identified by the inspection which may be necessary to ensure the continued effectiveness of the cover system are listed below:

1. Reseeding areas having insufficient vegetation;
2. Regrading, reseeding, and stabilizing areas damaged by erosion of the cover material by storm water runoff and/or wind;
3. Filling animal burrows;
4. Replacement of stone or riprap;
5. Regrading, reseeding and stabilizing cracks or fissures of the cover material resulting from excessive differential settlement; and,
6. Repair of any unauthorized damage or disturbances by personnel and/or equipment.

All scheduled maintenance and repair maintenance tasks performed for the cover system will be documented on the field maintenance form as shown on Table 6.

4.2 Surface Water Control System

4.2.1 Inspection Plan

The surface water control system provides for collection and discharge of surface water that runs onto and off the Site. The system consists of drainage channels which collect runoff from the landfill cover, and perimeter drainage channels. Surface water from most of the landfill cover discharges to the Sip Avenue Ditch, the IRM ditch, or the Hackensack River. There are several culverts located throughout the Site to convey the surface water to these discharge points.

Reasonably anticipated items which could impact the effectiveness of the surface water drainage system include:

1. Erosion;
2. Animal burrows;
3. Differential settlement;
4. Excessive accumulation of leaves, silt, and sediment;
5. Damage to culverts;
6. Encroachment of vegetation; and,
7. Unauthorized blockage, damage or disturbances by personnel and/or equipment.

The inspection will involve a Site walk-over to search for occurrence of the above items. The drainage channels will be inspected for blockages caused by leaves, grass clippings, silt deposits, or excessive vegetative growth which could impede or change the course of flow and cause erosion along the edges of the channel lining or ponding of the water. Excessive encroachment of vegetation in riprap-lined areas which could modify the flow capacity of the channel will be recorded. Other damage from vandalism or disturbances by on-site personnel or trespassers could decrease the effectiveness of the drainage channels.

Information collected during the inspection of the surface water control system will be documented in the field inspection form shown on Table 3. The surface water control system will be inspected annually in the spring in order to assess any damages from the freeze-thaw cycle or storm events. Additional inspections will be performed as deemed appropriate by the Group Project Manager.

4.2.2 Maintenance Plan

Scheduled maintenance of the surface water control system will include removal of leaves, grass clippings, excessive silt deposits, excessive vegetative growth, or any other debris from drainage

channels during the Spring inspection. The following common repair maintenance tasks are reasonably anticipated to be necessary to ensure the continued effectiveness of the surface water control systems:

1. Regrading, addition, and/or replacement of rip rap or desirable vegetation in the channels as a result of erosion, settlement or unauthorized damage; and,
2. Replacement of Site security equipment to prevent unauthorized entry and usage of IRM Perimeter Ditch or other drainage channels.

Repair maintenance tasks performed for the surface water control system will be documented on the field maintenance form as shown on Table 6.

4.3 Sip Avenue Ditch

4.3.1 Inspection Plan

The Sip Avenue Ditch is a drainage channel that runs in an east-west direction from Route 1 and 9 to the Hackensack River. Overflow from the Jersey City stormwater and sewer water system is carried under Route 1 and 9 and drains into the Sip Avenue Ditch. The Sip Avenue Ditch also receives surface water runoff from the Site. The Sip Avenue Ditch is lined with a cellular confinement system filled with soil, above a compacted structural fill subgrade.

Reasonably anticipated items which could impact the effectiveness of the surface water drainage system include:

1. Erosion;
 2. Differential settlement;
 3. Excessive accumulation of leaves, silt, and sediment;
 4. Damage to culverts and drainage channels entering the Sip Avenue Ditch;
 5. Unauthorized use of the Sip Avenue Ditch; and,
 6. Unauthorized blockage, damage or disturbances by personnel and/or equipment.
- The inspection will involve a Site walk-along the Sip Avenue Ditch or access roads to search for occurrence of the above items along the entire length of the Sip Avenue Ditch. The drainage channels will be inspected for blockages caused by leaves, grass clippings, silt deposits, debris or excessive vegetative growth which could impede or change the course of flow and cause erosion along the edges

along the edges of the ditch lining or ponding of the water. Excessive encroachment of vegetation in riprap-lined areas which could modify the flow capacity of the ditch will be recorded. Other damage from vandalism or disturbances by on-site personnel or trespassers could decrease the effectiveness of the Sip Avenue Ditch.

Information collected during the inspection of the Sip Avenue will be documented in the field inspection form shown on Table 3. The Sip Avenue Ditch will be inspected annually in the spring in order to assess any damages from the freeze-thaw cycle or storm events. Additional inspections will be performed after significant storms equal to or greater than the magnitude of a 2-year storm event (3.3 inches of rain in a 24-hour period), or when the Project Manager, or CCS Representative warrant an inspection.

4.3.2 Maintenance Plan

Routine inspection and maintenance of the Sip Avenue Ditch will be conducted on an annual basis and will include the following focus:

- Erosion or loss of riprap;
- Animal burrows;
- Differential settlement;
- Continuous flow without disruption or blockages;
- Undermining of the ditch lining due to water (mainly in the Jersey City culvert area);
- Scouring;
- Structural integrity of the cellular confinement system side slope; and,
- Damage or disturbances by personnel or equipment.

The riprap protection, and access roads will be inspected for structural integrity. Erosion or potential areas of erosion, animal burrows, differential settlement, or signs of instability of any areas that would result in erosion, should be identified and evaluated.

Repair maintenance tasks performed for the surface water control system will be documented on the field maintenance form as shown on Table 6.

4.4 Hackensack River Bank Erosion

4.4.1 Inspection Plan

The erosion control measures included the placement of a cellular confinement system along the banks of the Hackensack River. Other erosion measures included excavation and regrading of the existing materials to flatten steep slopes and provide access in areas of steep slope where previous slopes required additional stability. The excavation and fill were constructed to facilitate the construction of permanent erosion protection on the side slopes of the Hackensack River and to accommodate the placement of wetland vegetation.

The inspection will involve a Site walk along the river banks and/or access roadways to inspect the Hackensack Riverbank along the RV Salvage area. The riprap protection, and access roads will be inspected for structural integrity. Erosion or potential areas of erosion, animal burrows, differential settlement, vandalism or signs of instability of any areas that would result in erosion, should be identified and evaluated.

4.4.2 Maintenance Plan

Scheduled maintenance of the Hackensack River Bank erosion control system will be on an annual basis, during the Spring Site inspection. Routine maintenance items that could impact the effectiveness of the river bank erosion protection system include:

- Erosion or loss of cellular confinement system;
- Animal burrows;
- Differential settlement;
- Undermining of the riverbank stabilization due to water;
- Scouring;
- Loss of vegetation and/or bioengineering stabilization systems;
- Structural integrity of the cellular confinement system side slope; and,
- Damage or disturbances by personnel or equipment.

The river bank erosion protection measures will be inspected by the CCS Project Manager or O&M subcontractor on an annual basis. Additional inspections may be performed after significant storms equal to or greater than the magnitude of a 2-year storm event (3.3 inches of rain in a 24-hour period).

Information collected during the inspection of the river bank erosion protection system will be documented on field inspection forms shown in Table 6. Photographs will be taken as appropriate.

4.5 Passive Gas Venting System

4.5.1 Inspection Plan

The gas collection system consists of thirty-three (33) passive gas vents (6-inch diameter HDPE pipes) installed into a gas collection layer. The gas system functions to control the potential migration of residual landfill gas which might be generated by the decomposition of waste.

Items that could influence the effectiveness of the passive gas venting system include:

1. Blockages as a result of debris in the vents;
2. Birds or other animals nesting in the vents; and,
3. Unauthorized damage to the vents.

The inspection of the passive gas vents will involve visual observation of the external integrity of the vent and the bird screen on the end of the vent. Physical damage to the vent such as kinks or bends which may impede gas flow will be noted. Evidence of blockages as a result of debris or nesting of animals within the gas vents which may restrict flow will also be noted.

Information collected during the inspection of the passive gas venting system will be documented on the field inspection form shown on Table 3. The inspection of the passive gas venting system will be performed as part of the annual inspection.

4.5.2 Maintenance Plan

There are no scheduled maintenance requirements for the passive gas venting system. The anticipated repair maintenance tasks which may be necessary to ensure the continued effectiveness of the passive gas venting system are the following:

1. Repair or replacement of the passive gas vents or portions of the pipes if physical damage is noted which can decrease their effectiveness;
2. Removal of blockages such as grass clippings, leaves, birds or animals nests in the vents;
3. Replacement of bird screen at the end of the vent, if damaged; and,
4. Regrading around vent to prevent ponding of storm water.

Repair tasks performed for the gas vents will be documented on the field maintenance form as shown on Table 6.

4.6 Site Security System

4.6.1 Inspection Plan

Site security is provided by the Site security system as described in Section 2.2. The purpose of the security system is to prevent unauthorized access of vehicles onto the cover system. Periodic inspection of the Site security system is necessary to document and ensure the continued security of the Site.

Reasonably anticipated items which could reduce the effectiveness of the Site security system include:

1. Unauthorized damage or disturbances by personnel and/or equipment;
2. Excessive wear to the fence gate and/or lock;
3. Improper function of the fence gate and/or lock; and,
4. Vandalism.

Inspection of the Site security system will consist of visual observations. The security fence will be inspected for damage such as holes or breaks. The gates and locks will be inspected for damage or excessive wear. The results of the inspection will be documented on the field inspection form shown on Table 3. The integrity of the Site security system will be evaluated annually during the Spring inspection.

4.6.2 Maintenance Plan

There are no scheduled maintenance requirements for the Site security system. The anticipated repair maintenance tasks which may be necessary to ensure the continued effectiveness of the Site security system are listed below:

1. Repairing of any holes, breaks or other unauthorized damage or disturbances by personnel and/or equipment to the security fence, gate or lock;
2. Replacement of the gate and/or lock if excessive wear prohibits proper functioning; and,
3. Replacement of areas or sections of the security fence which have rusted significantly in order to prevent holes or breaks from developing in the fence.

All repair tasks performed for the Site security system will be documented on the field maintenance form as shown on Table 6.

4.7 Monitoring System

4.7.1 Inspection Plan

The purpose of the monitoring system is to monitor groundwater, surface water, and landfill gas in the vicinity of the Site. A total of 10 shallow groundwater monitoring wells are located on and around the Site as part of the long-term monitoring system. All monitoring wells at the Site included as part of the monitoring system will be inspected. Monitoring well locations are illustrated on Figure 2. The periodic inspection of the groundwater monitoring wells is necessary to document and ensure their continued effectiveness as valid monitoring points.

The following are those reasonably anticipated items which may impact the effectiveness of the groundwater monitoring wells:

1. Damage to the protective casing or lock;
2. Damage to the surface seal;
3. Evidence of vandalism;
4. Damage to the internal casing;
5. Blockages resulting from objects fallen into the well or bent casing; and,
6. Damage to the dedicated sampling equipment.

The inspection of the groundwater monitoring wells will involve visual observation of the external integrity of the well. The protective casing will be inspected for excessive rust and any damage as a result of vandalism. The lock will be checked to verify that it is in good working condition. The surface seal shall be inspected for cracks and damage as a result of freeze/thaw. The internal casing/protective casing annulus will be checked for blockages as a result of kinks or bends. The area should be free of debris and animals. The internal casing should also be inspected for blockages at depth during well sampling. The area around the monitoring well shall be inspected for drainage and accessibility.

Information gathered during the inspection of the groundwater monitoring wells will be documented on the field inspection form as shown on Table 5. The groundwater monitoring wells will be inspected during each monitoring event.

4.7.2 Maintenance Plan

There are no scheduled maintenance requirements for the monitoring system. Anticipated repair maintenance tasks which may be necessary in order to ensure the continued effectiveness of the groundwater monitoring wells include:

1. Replacement or repair of surface seal;
2. Replacement or repair of protective casing;
3. Replacement of the well;
4. Removal of vegetation to maintain access;
5. Replacement of the lock; and,
6. Replacement or repair of dedicated sampling equipment.

Repair tasks performed for the groundwater monitoring wells will be documented in the field maintenance form as shown on Table 6.

5.0 ENVIRONMENTAL MONITORING PLAN

In accordance with the ROD, groundwater and surface water monitoring will be performed to evaluate the concentration of contaminants. The monitoring program will be performed quarterly to evaluate the reduction of contaminant concentrations in groundwater and surface water. After sufficient post-closure monitoring data have been compiled, CCS might petition NJDEP to reduce the monitoring parameters and/or frequency. Such changes would not be implemented without prior NJDEP approval.

Routine monitoring of the passive gas vents and perimeter barhole or monitoring probe locations will also be conducted for the concentration of explosive gases. These data will confirm that the passive venting system is operating properly. Approximately 7 of the 33 total gas vents will be monitored. Monitoring of the gas vents will continue for a period of five (5) years, and then reviewed by the NJDEP.

Any modifications to the groundwater, surface water and gas vent monitoring program for the remainder of the O&M period will be submitted to NJDEP for approval prior to implementation.

5.1 Purpose

Specific objectives for the environmental monitoring plan are as follows:

- to assess the concentration of contaminants and trend(s) at groundwater wells and surface water collection points;
- to determine the presence of explosive landfill gases; and,
- to assess the effectiveness of the Remedial Action for controlling potential off-site migration.

5.2 Groundwater Monitoring

Groundwater samples will be collected from ten (10) shallow monitoring wells at the Site to monitor groundwater quality changes resulting from implementation of the Remedial Action. The ten monitoring wells include MW-1S, MW-4S, MW-5S, MW-6S, MW-7S, MW-8S, MW-9S, MW-10S, MW-11S, and MW-12S. The locations of these wells are shown on Figure 2. Some of these monitoring wells are located within the newly capped area, and some are located on the IRM capped area or offsite.

5.2.1 Groundwater Sampling Procedures

The monitoring wells will be purged and sampled using existing dedicated Well Wizard® sampling pumps in accordance with the USEPA Region II low-flow sampling Procedure (USEPA, 1998). If the pumps are inoperative or otherwise not useable (e.g., water level is below the pump intake), a disposable decontaminated Teflon bailer attached to Teflon coated stainless steel leader wire and new, dedicated polypropylene rope will be used for purging and sampling. Groundwater sampling procedures are presented in detail in Attachment OMA and are summarized below.

Initially, the depth to the static water surface will be measured with an electronic water level indicator to the nearest 0.01 foot. The well will then be purged until field measurements (i.e., pH, temperature, specific conductance, oxidation-reduction potential (ORP), dissolved oxygen, and turbidity) have stabilized to within 10% for two successive well volumes or until the well is dry. The 10% stability criteria does not apply to turbidity measurements less than 50 NTUs. A well volume is defined as the standing water column in the well casing. The volume of water evacuated, as well as the field measurements will be recorded for each successive well volume purged.

Once the well has been purged, samples will be collected within three (3) hours using the Well Wizard® sampling pump (or a Teflon bailer if necessary). If the well is pumped dry and is slow to recover, the well will be sampled as soon as it has recovered enough to fill the sample bottles, or within 24 hours, whichever occurs first.

Groundwater samples will be analyzed for the following:

- field measurements (pH, temperature, specific conductance, dissolved oxygen, ORP, and turbidity);
- VOCs;
- SVOCs (semi-annual only);
- metals; and,
- general water quality parameters (total suspended solids, total dissolved solids, and chloride).

If inadequate water is available to fill all sample bottles, VOC and SVOC samples should be given priority, in that order, followed by metals and general water quality parameters.

Pre-preserved sample bottles will not be used. Care will be taken while obtaining VOC samples to minimize aeration and loss of VOCs. The pump flow rate will be reduced to less than 100 milliliters per minute during collection of samples for VOCs. There will be no head space or air bubbles in the VOC vials, and the vials will be inverted and tapped lightly to check for air bubbles.

QA/QC samples will include one field duplicate and two VOC trip blanks (or one per day, whichever is greater). Equipment rinsate blanks are not necessary, as all monitoring wells have dedicated sampling pumps. However, if a bailer is used in lieu of an inoperative/not useable sampling pump, an equipment rinsate blank may be collected.

5.2.2 Groundwater Level Measurements

The depth to groundwater will be measured in all 10 existing groundwater monitoring wells at or near the Site. The locations of the wells are shown on Figure 2. The water levels of all 10 monitoring wells will be measured within a two hour period during the same day, and prior to any purging or sampling. The water level meter used for recording water levels will have the depth graduations checked with an independent measuring tape for calibration before field use.

Prior to each water level measurement, the well identification number, measuring device type and serial number, date, and time will be recorded. The water level meter will be rinsed with distilled water prior to each use. The water level meter probe will be lowered into the monitoring well and stopped at the depth where the meter indicates a completed circuit. The depth to water will be then be recorded to the nearest 0.01 foot relative to the top of the inner casing.

5.3 Surface Water Monitoring

A total of five (5) surface water samples will be collected. Samples will be collected from locations along the Sip Avenue Ditch and the Hackensack River. These locations are shown on Figure 2.

Surface water samples will be collected by direct immersion of sample bottles if possible. If not, a smaller sample bottle supplied by the laboratory and constructed of the same material (i.e., polyethylene or glass) will be used as a transfer vessel to distribute the sample into the various sample bottles. If the water is too shallow to allow the sample bottles to be immersed, a hole will be dug with a properly cleaned scoop or shovel to allow for complete immersion of the sample bottle. Samples will be collected after any visually-identified turbidity due to digging has dissipated.

Surface water sampling will be performed at the downstream locations first, then proceed to the more upstream locations. During sampling, the sample bottle will be held with the opening pointing upriver and the sampler will stand downriver of the bottle.

Surface water samples will be analyzed for the following parameters:

- VOCs;
- SVOCs (semi-annual only);
- metals; and
- total suspended solids (TSS); and
- hardness.

QA/QC samples will include one field duplicate and one VOC trip blank per day.

5.4 Field Measurements

Field measurements of temperature, pH, specific conductance, ORP, dissolved oxygen, and turbidity will be completed at the time of groundwater and surface water sample collection, as appropriate. The procedures to be used are included in Attachment OMA.

5.5 Schedule

Groundwater and surface water monitoring will initially be performed on a quarterly basis as required by the ROD. Once sufficient data have been compiled, CCS might petition NJDEP to reduce the monitoring parameters and/or frequency. Such changes will not be implemented without prior approval by NJDEP.

5.6 Gas Monitoring

The waste in the landfill is not expected to generate large amounts of methane because the waste is approximately 30 years old, and the release of explosive gases were not a concern during construction of the IRM cap area. Therefore, potential migration of landfill gas will be monitored on an annual basis during the O&M period. Explosive gases will be monitored at a depth of 3 feet below ground surface using soil gas barhole probes along the perimeter of the landfill in the selected passive gas vents located on Site. If the concentration of explosive gases is less than 25% of the lower explosive limit (LEL) for methane, and are not increasing during the 1-year period, then CCS might propose a more streamlined monitoring program to NJDEP for review and approval if little potential for off-site gas migration is detected.

6.0 REPORTING AND RECORDKEEPING

The following sections describe reporting procedures for inspection, operation, maintenance, and monitoring activities during the post-closure period. The results of these activities will be summarized in Annual Quarterly Reports submitted by the CCS Project Manager to the NJDEP by March of the year following the end of the reporting period.

Site records will be kept by the CCS, in care of WMNJ/CCS.

PJP Landfill Site
Waste Management, Inc.
4 Liberty Lane West
Hampton, New Hampshire 03842
(603) 929-5446

6.1 Inspection Reporting

All inspection activities described in Section 4.0 will be documented by the CCS Representative or the subcontractor(s) responsible for performing the various inspections. Inspection evaluation reports will summarize the inspection activities and any maintenance required based upon the inspections. Should repairs or corrective actions beyond routine maintenance be required, the Group will provide documentation on these activities.

6.2 Maintenance Reporting

All repair and maintenance activities described in Section 4.0 of this O&M Plan will be documented by the Group Project Manager or contractor(s) responsible for performing the various maintenance activities. Should repairs or corrective actions beyond routine maintenance be required, the Group will provide documentation on these activities. If significant repairs require modification of the as-built drawings as approved by the NJDEP, the as-built drawings will be revised and certified by a registered Professional Engineer in the State of New Jersey. The revised as-built plans will be submitted by the CCS Project Manager to the NJDEP in the annual reports.

6.3 Monitoring Reporting

Groundwater and surface water monitoring data will be collected by the CCS Project Manager as described in Section 4.0 of this O&M Plan.

6.4 Safety Reporting

If an unsafe situation is discovered during an inspection, maintenance, or monitoring activity, the CCS Project Manager will provide verbal notification of the incident to the NJDEP within 72 hours (three days) of becoming aware of the incident. The identified situation will be corrected within 24 hours or shut down until it can be corrected. A summary of the incident will be included in the next Annual Report.

7.0 EMERGENCY PLAN

Routine post-closure activities at the Site will be covered under the Health and Safety Contingency Plan (HASCP) for the PJP Landfill Site. The HASCP shall be prepared by the O&M contractor(s) in accordance with the minimum requirements presented in Appendix OMB. All personnel on the Site performing routine inspections, maintenance or monitoring activities will be properly trained for these activities and will be made aware of the proper health and safety measures associated with these tasks. Each contractor shall have a designated site health and safety coordinator responsible for assuring the designated procedures are implemented.

All health and safety equipment will be supplied by the contractor(s) performing the work and will be available on Site during inspection, maintenance and monitoring activities as indicated for the particular work in the HASCP. Equipment will be easily accessible and located as close as practical to the work area. All equipment will be maintained in a "ready-to-use" condition. All equipment used will be properly decontaminated, cleaned, refilled, or replaced as necessary or required by the manufacturers' instructions. Personnel will be familiar with proper procedures for operating and cleaning the equipment.

Personnel performing such activities as sampling, confined space entry, or any intrusive work shall be 40-hour OSHA Health and Safety trained in accordance with 29 CFR 1910 and 1926. At a minimum, these personnel will be briefed regarding existing Site conditions. It will be the responsibility of the contractor(s) to ensure that all employees adhere to the HASCP along with all local, State and Federal regulations while on-site.

7.1 Organizational Structure and Responsibilities

The CCS Project Manager will be responsible for personnel, equipment, policies, and procedures for all inspection, maintenance, monitoring, operating, and other activities at the Site. The CCS Project Manager will serve as or appoint the Emergency Coordinator. Additional responsibilities of the CCS Project Manager include, but are not limited to, the following:

- Identification of materials or wastes handled (materials inventory);
- Identification of potential hazard sources (risk assessment);
- Establishment of emergency reporting procedures;
- Establishment of visual inspection program;

-
- Review of past incidents, spills, and countermeasures utilized;
 - Coordination and implementation of the goals of the health and Safety Contingency Plan;
 - Coordination of activities for emergency response;
 - Notification of appropriate authorities;
 - Establishment of employee training/educational programs;
 - Periodic review and update of the Safety Plan portion of this O&M Plan; and,
 - Serve as or appoint one or more emergency coordinators.

The Emergency Coordinator will be responsible for coordinating all emergency response measures to reduce or prevent harm to human health and the environment in the event of a fire, explosion, emission, and/or discharge of hazardous materials. In the event of an imminent or actual emergency situation, the Emergency Coordinator will perform the following tasks:

- Notify on-site personnel;
- Identify the problem and assess the environmental and health hazards;
- Call Emergency Response personnel (fire, police, EMS) for backup;
- Take all reasonable measures to stabilize the situation, including evacuation of the Site, if necessary;
- Document the situation and actions taken;
- Continue to monitor the situation after stabilization; and,
- Contact the CCS Project Manager, who will contact State and Federal environmental regulatory agencies.

During an emergency, the Emergency Coordinator will take reasonable measures necessary to ensure that fire, explosion, emission, or discharge do not occur, reoccur, or spread. These measures will include terminating O&M activities or operations, evacuating Site personnel, and ensuring that all access roads are kept free of obstructions during an emergency situation.

If Site operations and activities cease in response to a fire, explosion, emission, or discharge, the Emergency Coordinator will ensure that adequate monitoring is conducted for leaks, pressure build-up, gas generation, or ruptures in valves, pipes, or other equipment, where appropriate.

If response to an on-site incident requires assistance from outside emergency support agencies (police,

(police, fire department, medical emergency response teams), the Emergency Coordinator will contact the appropriate agency. The Emergency Coordinator will have immediate and full responsibility and authority to engage the services required. If conditions warrant, the Emergency Coordinator will relinquish control of the situation to the appropriate agency official upon arrival on-site.

After an emergency, the Emergency Coordinator will consult with the CCS Project Manager to determine what treatment or disposal of contaminated soils or waste is appropriate. He will ensure that all necessary cleanup procedures are completed. Reporting will be as presented in Section 6.4.

In the event of an emergency, the individual who observes the event will immediately (within 15 minutes or less) report the condition to the Emergency Coordinator, who will take the appropriate action as described above. If the Emergency Coordinator is unavailable, his/her backup, or the senior individual on-site will act as the Emergency Coordinator's designee until the Emergency Coordinator becomes available. A maintenance, operations, or design failure that does not result in personal injury or imminent harm is not considered to be an emergency situation.

External communications will be accomplished via outside telephone lines or cell phones. Direct telephone communication will be used to alert outside agencies, such as the fire and police departments, in the event of an emergency. The CCS Project Manager, not the Emergency Coordinator, shall notify the NJDEP, and USEPA if appropriate, of an on-site emergency situation.

7.2 Emergency Services

If response to an on-site incident requires assistance from outside emergency support agencies (police, fire department, medical emergency response teams), the Emergency Coordinator will contact the appropriate agency. He/she has immediate and full authority to engage the services required. The Emergency Coordinator will then relinquish control of the situation to the appropriate emergency official upon the official's arrival on-site, but continue to provide advice.

A list of contacts and emergency services is provided below in case an emergency situation arises. This list and a map showing the locations of the Site and hospital will be posted in conspicuous locations on-site. The 911 emergency system is operational in the Site's immediate area.

- | | |
|----------------------------------|--------------|
| 1. Jersey City Police Department | 201/547-5477 |
| 2. Jersey City Fire Department | 201/547-4206 |

3. Jersey City Ambulance	201/451-9800
4. Jersey City Medical Center	201/451-9800
5. CCS Group Project Manager - David Moreira	603/929-5446
6. NJDEP – Haiyesh Shah	609-633-0178
7. USEPA – Renee Gelblatt	212-637-4414

The Emergency Coordinator will give the following information to the emergency agency:

1. Name and telephone of person reporting the incident;
2. Name and address of the site;
3. Time and type of incident;
4. Name, nature, and quantity of material(s) involved, to the extent known;
5. The extent of injuries, if any; and,
6. Identified hazards to human health and/or the environment.

An Emergency Response Contact List and an Emergency Notification Form are provided as Table 7.

7.3 Evacuation Plan

It is not anticipated that full evacuation of the Site or adjacent properties will be necessary. In general, evacuation will be limited to the immediate area surrounding the emergency situation. If the Emergency Coordinator determines that Site evacuation is necessary, the following evacuation procedures will be implemented:

1. Notify all on-site personnel;
2. Personnel will secure equipment and materials and place them in secure areas;
3. Personnel will evacuate via site access roads;
4. Personnel will reassemble near the Route 1 and 9 entrance gate to the Site, or an alternate location, determined by the Emergency Coordinator, away from the incident to verify all personnel have evacuated the area of concern;
5. Emergency Coordinator will account for all personnel;

6. Emergency Coordinator will notify the appropriate emergency response agency; and
7. Personnel will not re-enter the area until it is determined to be safe by the Emergency Coordinator or the appropriate emergency official in charge.

The evacuation procedures outlined above will be communicated to all personnel.

7.4 Amendments to the Safety Plan

Amendments to the Health and Safety/Contingency Plan will be submitted to NJDEP for review, as necessary.

7.4.1 Alternate Operation and Maintenance (Systems Failure)

It is unlikely that failure of the cap and cover systems would occur resulting in immediate endangerment to the public health and the environment. Instead, localized areas of the cap and cover systems may be temporarily compromised as a result of a large storm event. This O&M Plan requires the cap and cover systems to be inspected and maintained after major storms to maintain the integrity of these areas. Repairs will be carried out as soon as practical following discovery of the need for a cap repair and development of an appropriate repair procedure. Temporary controls will be established to mitigate further damage until permanent systems are established.

7.4.2 Amendments to the Emergency Plan

The Emergency Plan will be reviewed and amended, as appropriate, if one of the following occurs:

1. Emergency measures merit revision based on actual experience;
2. Changes in the system operation or activities increase the potential for an emergency;
3. The personnel or agency lists or emergency equipment requirements change; or,
4. Any safety considerations.

7.5 Plan Modification Procedures

During the 30-year post-closure period, CCS will annually evaluate the inspection, operation, maintenance, and monitoring activities described in this O&M Plan and performed during, at least, the first five years of operation. Modifications to this O&M Plan may be appropriate (e.g. reduction in

in monitoring frequency) based on changes in Site conditions and/or new information collected during the post-closure period. The O&M modifications will be submitted for NJDEP review. Major modifications to this O&M Plan will be implemented upon receipt of approval from NJDEP. Minor modifications will be implemented without prior NJDEP review and approval, although the NJDEP will be informed of any such changes in a timely manner. The CCS Project Manager will promptly distribute the modifications to the NJDEP, USEPA, and others, if required, so that each project team member's O&M Plan can be updated.

This O&M Plan will be reviewed in detail after one year of O&M activities and modified/updated as necessary.

8.0 REFERENCES

Golder Associates Inc., 2000. "Remedial Design Work Plan, PJP Landfill Site, Hudson County, New Jersey," Revision 3, November.

Golder Associates Inc., October 2003. "Intermediate (65%) Design Report, PJP Landfill Site, Hudson County, New Jersey."

Golder Associates Inc., June 2004. "Pre-Final (90%) Design Report, PJP Landfill Site, Hudson County, New Jersey."

Golder Associates Inc., March 2007. "Final (100%) Design Report, PJP Landfill Site, Hudson County, New Jersey."

Golder Associates Inc. "Groundwater and Surface Water Monitoring Data, PJP Landfill Site, Hudson County, New Jersey."

USEPA, September 1995. "Record of Decision for the PJP Landfill."

USEPA, 1998. Region II Groundwater Sampling Procedure Low Stress (low flow) Purging and Sampling, March 16, 1998.

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**TABLE 1
PROJECT PERSONNEL**

O&M Contractor Project Manager:	To Be Determined
O&M Contractor Field Coordinator:	To Be Determined
O&M Contractor Quality Assurance Officer:	To Be Determined
O&M Contractor Laboratory Coordinator/ Data Validator:	To Be Determined
Laboratory Project Manager: Alternate Laboratory Project Manager:	To be determined
Laboratory Quality Assurance Director: Laboratory Quality Assurance Manager:	To be determined

NJDEP will be notified when a laboratory has been selected for this project.

TABLE 2
SUMMARY OF DATA QUALITY OBJECTIVES
PJP LANDFILL ENVIRONMENTAL MONITORING PLAN

ACTIVITY	NUMBER OF SAMPLING POINTS	PARAMETERS OF INTEREST	OBJECTIVES	DQO LEVEL
Long-Term Groundwater Monitoring	10 10 10 10	TCL Volatiles TCL Semi-Volatiles (annual) Unfiltered TAL Metals Total suspended solids	Provide water quality data to evaluate benefit of remedy implementation and constituent transport to adjacent surface water bodies.	Definitive
Long-Term Surface Water Monitoring	5	(annual), Filtered and Unfiltered TAL Metals, Hardness	Provide water quality data to evaluate potential constituent transport from site groundwater.	Definitive
Passive Landfill Vent Gas	49 IRM + all new passive gas vents	Total Volatile Organic Compounds (PID) Explosive gases (%LEL) Gas Flow Rate	To evaluate potential offsite explosive gas migration.	Field Screening
Perimeter Landfill Gas Probe	TBD	% LEL	To evaluate subsurface gas migration after capping.	Field Screening
Wetland Mitigation Vegetation ⁽¹⁾	TBD	Survival	Greater than 85% desirable wetland vegetation cover	Field Screening

TBD - To be determined

All monitoring will be on a quarterly basis except semi-volatile organics in groundwater and surface water, that will be on an semi-annual basis

⁽¹⁾ Inspections will occur twice per year for the first two years then each spring for three additional years.

April 2007

003-6004-002

Table 3
POST-CLOSURE ANNUAL INSPECTION FORM
PJP LANDFILL
JERSEY CITY, NEW JERSEY

DATE _____

INSPECTION (Circle one):
ANNUAL
OTHER _____

INSPECTOR _____

ITEM	ADEQUATE	NEEDS ATTENTION	COMMENTS (NOTE IF REPAIR MAINTENANCE REQUIRED)
I. PROTECTIVE COVER SYSTEMS			
A. General condition of cover material	_____	_____	_____
B. Settlement control	_____	_____	_____
C. Erosion control	_____	_____	_____
D. Animal burrows	_____	_____	_____
E. Large weeds or woody species	_____	_____	_____
F. Vegetation	_____	_____	_____
G. General conditions of access roads	_____	_____	_____
II. SURFACE WATER DRAINAGE SYSTEMS			
A. General condition of channels	_____	_____	_____
B. Settlement control	_____	_____	_____
C. Erosion control	_____	_____	_____
D. Animal burrowing	_____	_____	_____
E. Flow capability	_____	_____	_____
F. Rip rap protection	_____	_____	_____
G. Vegetation control	_____	_____	_____
H. Structural integrity of culverts	_____	_____	_____
III. PASSIVE GAS VENTING SYSTEM			
A. General condition of each vent	_____	_____	_____
B. Vent visibility	_____	_____	_____
C. Drainage and accessibility	_____	_____	_____
D. Venting capability	_____	_____	_____
IV. SITE SECURITY			
A. Security Fence	_____	_____	_____
B. Gate and lock	_____	_____	_____

Clearly Identify Areas Needing Attention (Reference Item No.) on the Site Plan.

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April 2007

003-6004-002

TABLE 4
INSPECTION FORM
RIVER BANK EROSION PROTECTION
OPERATION AND MAINTENANCE PLAN
PJP LANDFILL, HUDSON COUNTY, NEW JERSEY

AREA _____

DATE _____

INSPECTOR _____

INSPECTION (Circle one): ANNUAL
OTHER _____

ITEM	ADEQUATE	NEEDS ATTENTION	COMMENTS (NOTE IF REPAIR MAINTENANCE REQUIRED)
I. RIVER BANK EROSION PROTECTION SYSTEM			
A. General condition of erosion protection	_____	_____	_____
B. Erosion or loss of rip rap	_____	_____	_____
C. Animal Burrows	_____	_____	_____
D. Differential Settlement	_____	_____	_____
E. Excessive accumulation of sediment	_____	_____	_____
F. Sideslope stability	_____	_____	_____
G. Damage or disturbances by equipment and/or personnel	_____	_____	_____

Additional Notes:

1. Clearly identify areas needing attention (Reference Item No.) and illustrate on the attached Site Plans.
2. Take photographs as appropriate.

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TABLE 5
MONITORING WELL
POST-CLOSURE INSPECTION FORM
PJP LANDFILL
JERSEY CITY, NEW JERSEY

DATE _____

INSPECTOR _____

MONITORING WELL NO.: _____

	YES	NO	ACTION REQUIRED
A. <u>Location/Identification</u>			
1. Is well readily accessible?	_____	_____	_____
2. Is well in a protected area or in a vulnerable traffic area?	_____	_____	_____
3. Is well situated outside a low point or ponded water?	_____	_____	_____
4. Is well head area free of waste, stored chemicals, etc.?	_____	_____	_____
5. Is well flagged or painted?	_____	_____	_____
6. Is well labeled inside and outside?	_____	_____	_____
B. <u>Surface Seal</u>			
1. Is concrete surface seal in good condition (i.e., no cracks)?	_____	_____	_____
2. Is the seal secure against the casing and ground surface?	_____	_____	_____
3. Is the seal sloped away from the well head?	_____	_____	_____
C. <u>External Casing</u>			
1. Does well have external casing in good condition (i.e., no cracks)?	_____	_____	_____
2. Is external casing locked?	_____	_____	_____
3. Is lock in good condition (i.e., no severe rust)?	_____	_____	_____
4. Is casing/annulus in good condition and free of water/animals/debris?	_____	_____	_____
D. <u>Internal Casing</u>			
1. Is internal casing at least 1 foot above ground?	_____	_____	_____
2. Is casing tight horizontally/vertically/rotationally?	_____	_____	_____
3. Is casing free of animals/debris/kinks or bends?	_____	_____	_____

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April 2007

TABLE 6
POST CLOSURE MAINTENANCE/REPAIR FORM
PJP LANDFILL
JERSEY CITY, NEW JERSEY

953-6252

DESCRIPTION OF MAINTENANCE/PROBLEM: _____

DATE PROBLEM IDENTIFIED: _____

MAINTENANCE/REPAIR TAKEN TO RESOLVE PROBLEM (Identify Locations of Maintenance on Site Plan):

DATE COMPLETED: _____

INSPECTOR: _____

TABLE 7
EMERGENCY NOTIFICATION RECORD
PJP LANDFILL
JERSEY CITY, NEW JERSEY

Inspector identifying emergency: _____

Date of identification of emergency: _____

Description of emergency: _____

Person(s) notified: _____

Date of notification: _____

Signature of inspector and date: _____

List of persons to be notified:

1. CCS Group representative: _____
Address: _____
Telephone number: _____
2. Emergency Agency representative: _____
Address: _____
Telephone number: _____

TABLE 8
TARGET ANALYTES, ANALYTICAL METHODS, AND QUALITY ASSURANCE SAMPLES
PJP LANDFILL ENVIRONMENTAL MONITORING PLAN

Long-Term Groundwater Monitoring Program

Parameters	Methodology	Number of Samples	Types of Samples
TCL Volatiles	SW846 8260B	10 ⁽¹⁾ 2 ⁽²⁾ 2 ⁽²⁾ 2 ⁽²⁾ 1 per day ⁽²⁾	Primary Field Duplicates MS MSD Trip Blanks
TCL Semi-volatiles (semi-annual basis only)	SW846 8270C	10 ⁽¹⁾ 2 ⁽²⁾ 2 ⁽²⁾ 2 ⁽²⁾	Primary Field Duplicates MS MSD
TAL Metals (unfiltered)	SW-846 6010 and 7000 series	10 ⁽¹⁾ 2 ⁽²⁾ 2 ⁽²⁾ 2 ⁽²⁾	Primary Field Duplicates MS Laboratory Duplicate
Total Suspended Solids	USEPA 160.2 ⁽³⁾	10 ⁽¹⁾ 2 ⁽²⁾ 2	Primary Field Duplicates Laboratory Control Sample

Long-Term Surface Water Monitoring Program

Parameters	Methodology	Number of Samples	Types of Samples
TCL Volatiles	SW846 8260B	5 ⁽¹⁾ 1 ⁽²⁾ 1 ⁽²⁾ 1 ⁽²⁾ 1 per day ⁽²⁾	Primary Field Duplicates MS MSD Trip Blanks
TCL Semi-volatiles (semi-annual basis only)	SW846 8270C	5 ⁽¹⁾ 1 ⁽²⁾ 1 ⁽²⁾ 1 ⁽²⁾	Primary Field Duplicates MS MSD
TAL Metals (filtered and unfiltered)	SW-846 6010 and 7000 series	10 ⁽¹⁾ 2 ⁽²⁾ 2 ⁽²⁾ 2 ⁽²⁾ 1 ⁽²⁾	Primary Field Duplicates MS Laboratory Duplicate Field Rinsate Blanks (filtered sample only)
Hardness	6010 (calculated)	5 ⁽¹⁾ 1 ⁽²⁾	Primary Field Duplicates

Notes:

⁽¹⁾ Represents the number of primary samples including background samples.

⁽²⁾ The number of MS/MSD samples are dependent upon the sampling schedule which may be impacted by weather, field conditions or access issues. Each type of QA/QC sample will be collected at a rate of one per twenty primary samples or two per monitoring event, whichever is greater.

⁽³⁾ See Table 9.

TABLE 9
PARCC DATA FOR AQUEOUS SAMPLES
PJP LANDFILL ENVIRONMENTAL MONITORING PLAN

MEASUREMENT PARAMETER	METHOD REFERENCE	LABORATORY PRECISION	FIELD & LABORATORY PRECISION	ACCURACY	COMPLETENESS ^(b)
Volatile Organics-TCL	SW846 8260B	see Table D-5	+/- 50%	see Table D-5	85%
Semi-Volatile Organics-TCL	SW846 8270C	see Table D-5	+/- 50%	see Table D-5	85%
Total Metals-TAL	SW846 6010 and 7000 series	see Table D-5	+/- 50%	see Table D-5	85%
Total Suspended Solids	EPA 160.2	+/- 20%	+/- 50%	75% - 125%	85%
Hardness	6010 (calculated)	+/- 20%	+/- 50%	75% - 125%	85%
Specific Conductance	Electrode	NA	+/- 50%	NA ^(a)	85%
pH	Electrode	NA	+/- 0.5 std pH units	NA ^(a)	85%
Turbidity	Electrode	NA	+/- 10% or 5 NTU	NA ^(a)	85%
Dissolved Oxygen	Electrode	NA	+/- 50 % or 0.5 mg/l	NA ^(a)	85%
Temperature	Electrode	NA	+/- 0.5 deg C	screening	85%
Redox Potential	Electrode	NA	+/- 100 mV	NA ^(a)	85%

NOTES:

NA = Not applicable

TCL = Target Compound List defined by CLP Statement of Work OLM03.2

TAL = Target Analyte List defined by CLP Statement of Work ILM03.1

SM = Standard Methods for the Examination of Water and Waste, 18th edition, 1992.

SW846 = Test Methods for Evaluating Solid Waste-Physical/Chemical Methods, SW-846, 3rd Edition, Update III, December 1996

EPA = Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, 1979 revised March, 1983.

Precision expressed as either percent relative standard deviation (%RSD) or relative percent difference (%RPD).

Accuracy expressed as percent recovery of matrix spike or laboratory control sample.

Representativeness and Comparability are non-quantitative parameters.

Reporting limits for each analyte which may be tested will be determined by the end use of the data, the analytical methodology employed and the analytical laboratory retained to perform the work.

Field and Laboratory precision based upon Region II validation guidelines.

^(a) Accuracy goals that can not be defined as matrix spikes will not be performed on field parameters. Field meters will be standardized/calibrated at the beginning of each day.^(b) The goal for completeness of laboratory measurements is 90%, the goal for total completeness (sampling and analytical) is 85%.

TABLE 10
LABORATORY ACCURACY AND PRECISION* CRITERIA
FOR AQUEOUS SAMPLES

VOLATILE ORGANICS:		<u>QC LIMITS</u>	
<u>Target Compound</u>	<u>% Recovery</u>		<u>% RPD</u>
1,1-Dichloroethene	61%-145%		0%-14%
Trichloroethene	71%-120%		0%-24%
Benzene	76%-127%		0%-22%
Toluene	76%-125%		0%-13%
Chlorobenzene	75%-130%		0%-13%
<u>Surrogate Compound</u>			
Toluene-d8	88%-110%		Not Applicable
4-Bromofluorobenzene	86%-115%		Not Applicable
1,2-Dichloroethane-d4	80%-120%		Not Applicable
SEMIVOLATILE ORGANICS:		<u>QC LIMITS</u>	
<u>Target Compound</u>	<u>% Recovery</u>		<u>% RPD</u>
Phenol	12%-110%		0%-42%
2-Chlorophenol	27%-123%		0%-40%
1,4-Dichlorobenzene	36%-97%		0%-28%
N-Nitroso-di-n-propylamine	41%-116%		0%-38%
1,2,4-Trichlorobenzene	39%-98%		0%-28%
4-Chloro-3-methylphenol	23%-97%		0%-42%
Acenaphthene	46%-118%		0%-31%
4-Nitrophenol	10%-80%		0%-50%
2,4-Dinitrotoluene	24%-96%		0%-38%
Pentachlorophenol	9%-103%		0%-50%
Pyrene	26%-127%		0%-31%
<u>Surrogate Compound</u>			
Nitrobenzene-d5	35%-114%		Not Applicable
2-Fluorobiphenyl	43%-116%		Not Applicable
Terphenyl-d14	33%-141%		Not Applicable
Phenol-d5	10%-110%		Not Applicable
2-Fluorophenol	21%-110%		Not Applicable
2,4,6-Tribromophenol	10%-123%		Not Applicable
INORGANICS:		<u>QC LIMITS</u>	
<u>Target Analyte</u>	<u>% Recovery</u>		<u>% RPD</u>
Metals	75%-125%		0%-50% ^(a)

NOTES:

- * - Accuracy and Precision Criteria based upon SW846 methodologies as well as NJDEP data validation guidelines.
- (a) - Maximum % RPD is 50% if concentration is greater than five times the practical quantitation limit (PQL).
 If the concentration is less than five times the PQL, the precision limit is +/- 2 times the PQL.

TABLE 11
ANALYTICAL METHODS, SAMPLE CONTAINERS, PRESERVATION AND ANALYTICAL HOLD TIMES FOR AQUEOUS SAMPLES
PJP LANDFILL REMEDIAL DESIGN WORK PLAN

PARAMETER	CONTAINER	MINIMUM SAMPLE	PRESERVATION ^(d)	FIELD FILTERED	HOLD TIME ^(e)
Volatile Organics-TCL	3-40 ml G	3 - 40 ml		No	14 days ^(a)
Semi-Volatile Organics-TCL	2-1000 ml Amber G	1000 ml	Cool 4 deg C	No	7 days ^(b)
Metals-TAL (unfiltered)	1-500 ml P	250 ml	Cool 4 deg C; HNO ₃ , pH<2	No	180 days ^(c)
Total Suspended Solids	1-200 ml P or G	200 ml	Cool 4 deg C	No	7 days
Specific Conductance	flow-through cell	NA	None	No	Field Measurement
pH	flow-through cell	NA	None	No	Field Measurement
Turbidity	flow-through cell	NA	None	No	Field Measurement
Dissolved Oxygen	flow-through cell	NA	None	No	Field Measurement
Redox	flow-through cell	NA	screening	No	Field Measurement
Temperature	flow-through cell	NA	None	No	Field Measurement

NOTES:

^(a) If preservation is not possible due to foaming, both preserved and unpreserved sample will be collected if possible. The hold time will be 7 days for unpreserved sample.

^(b) 7 days for extraction, 40 days for analysis after commencement date of extraction.

^(c) Hold time for Mercury is 28 days.

^(d) Sample preservation is performed by sampler immediately upon sample collection.

^(e) Hold time based upon day of sample collection not verified time of sample receipt.

1. EPA "Methods for Chemical Analysis of Water and Waste", 1979, revised 3/83.

2. SW846 is Test Methods for Evaluating Solid Waste, 3rd edition, Update III, December 1996.

3. SM "Standard Methods for the Examination of Water and Waste", 18th Edition, 1992.

TCL = Target Compound List defined by CLP Statement of Work OLM03.2

TAL = Target Analyte List defined by CLP Statement of Work OLM03.1

P = Polyethylene

G = Glass

APPENDIX OMA

SAMPLING AND ANALYSIS PLAN

OPERATIONS AND MAINTENANCE (O&M) PLAN
PJP LANDFILL SITE
HUDSON COUNTY, NEW JERSEY

APPENDIX OMA

The Sampling and Analysis Plan will follow the same protocol and procedures that were followed in the Remedial Design Work Plan (RDWP), which were previously presented and approved.

APPENDIX OMB

**HEALTH AND SAFETY CONTINGENCY PLAN
FOR OPERATIONS AND MAINTENANCE ACTIVITIES**

TO BE PROVIDED UPON COMPLETION OF THE REMEDIAL DESIGN

ATTACHMENT 01564-1

**REMEDIAL DESIGN
HEALTH AND SAFETY CONTINGENCY PLAN**

SECTION 01564

HEALTH AND SAFETY SPECIFICATIONS FOR CONSTRUCTION

PART 1 - GENERAL

1.01 PURPOSE

- A. The purpose of Section is to establish minimum health and safety requirements for the CONTRACTOR to satisfy in the preparation of the CONTRACTOR's Site-specific Health and Safety Plan.

1.02 APPLICABILITY

- A. These requirements shall be used by the Remedial Action CONTRACTOR's Health and Safety Officer (HSO) to assist in preparation of the CONTRACTOR's Site-specific Health and Safety Plan. These requirements shall not relieve the CONTRACTOR from compliance with any applicable State, Federal, or other health and safety requirements and safe construction practices even if not specifically identified in these requirements. These requirements shall not relieve the CONTRACTOR's complete responsibility for the Site's safety and security, including Health and Safety.
- B. If, at any time, the REMEDIAL DESIGNER or GROUP'S REPRESENTATIVE is apprised of a safety hazard which demands immediate attention because of its high potential for harm to public travel, persons on or about the Work, or public or private property, the REMEDIAL DESIGNER or the GROUP'S REPRESENTATIVE shall have the right to order such safeguards to be erected and such precautions to be taken as necessary and the CONTRACTOR shall comply with such orders. In particular, the CONTRACTOR should take appropriate measures to protect workers from direct or indirect contact with solid waste, landfill gas and/or leachate from the landfill areas. Furthermore, the CONTRACTOR should take appropriate measures to protect workers from oxygen-deficient or explosive atmospheres that may be present in a confined-space entry.

If, under such circumstances, the CONTRACTOR does not or cannot immediately put the Work into proper and approved condition, or if the CONTRACTOR or his representative is not on the Site so that he can be notified immediately of the insufficiency of safety precautions, then the GROUP'S REPRESENTATIVE may put the Work into such a condition that it shall be, in his opinion, in all respects safe, and the CONTRACTOR shall pay all costs of such labor and materials. The fact that the REMEDIAL DESIGNER or the GROUP'S REPRESENTATIVE does not observe a safety hazard or does not order the CONTRACTOR to take remedial measures shall in no way relieve the CONTRACTOR of the entire responsibility for any costs, loss, or damage by any party sustained on account of the insufficiency of the safety precautions taken by the CONTRACTOR or by the REMEDIAL DESIGNER or the GROUP'S REPRESENTATIVE acting under authority of this Section.

- C. It is the responsibility of the CONTRACTOR to take appropriate safety precautions to meet whatever conditions of hazard may be present during the performance of the Work, whether the hazard may or may not be reasonably foreseeable. The CONTRACTOR is alerted to the fact that it shall be his responsibility to anticipate and provide such additional safety precautions, facilities, personnel, and equipment as shall be necessary to protect life and property from whatsoever conditions of hazard are present or may be present.

1.03 RELATED SECTIONS

- A. 01540 - Job Site Security
- B. 01550 - Site Access and Traffic Control
- C. 01562 - Dust Control
- D. 01563 - VOC, Odor, and Vector Control

1.04 MINIMUM REQUIREMENTS

- A. The CONTRACTOR shall prepare and implement a Site-specific Health and Safety Plan. The Health and Safety Plan shall conform with applicable State and Federal requirements, including, but not limited to:
1. Safety and Health Regulations promulgated by the U.S. Department of Labor: 29 CFR Part 1904 - Recording and Reporting Occupational Injuries and Illness, 29 CFR Part 1910 - Occupational Safety and Health Standards, and 29 CFR Part 1926 - Safety and Health Regulations for Construction.
 2. U.S. Environmental Protection Agency Interim Standard Operating Safety Guides - Office of Emergency and Remedial Response - Hazardous Response Support Division, Rev. September 1982.
 3. U.S. Environmental Protection Agency Medical Monitoring Program Guidelines.
- B. The CONTRACTOR's Site-Specific Health and Safety Plan shall be prepared by the HSO. The HSO shall have experience with establishing and implementing Health and Safety Plans for hazardous waste site remediation projects and be a Certified Industrial Hygienist. The resume of the HSO shall be included in the Health and Safety Plan. The HSO shall be responsible for:
- Preparing and implementing the Health and Safety Plan;
 - Updating the Health and Safety Plan as needed based on site conditions;
 - Overall health and safety of the CONTRACTOR's and Subcontractor's personnel;
 - Monitoring site health and safety conditions;
 - Protecting surrounding community;
 - Coordinating with area residents and other on-site CONTRACTOR's and subcontractors;
 - Maintaining health and safety records; and,

- Identifying and providing a qualified Site Health and Safety Coordinator (SHSC) whom will implement the Site-specific Health and Safety Plan at the project site.
- C. The CONTRACTOR's Health and Safety Plan shall incorporate the requirements contained herein and shall describe all actions to be taken to protect the health and safety of workers and the surrounding community. The plan shall identify all tasks to be undertaken by the CONTRACTOR and shall establish Health and Safety procedures for each task. The CONTRACTOR's Site-specific Health and Safety Plan shall be approved in writing by the HSO and shall be submitted to the GROUP'S REPRESENTATIVE, the REMEDIAL DESIGNER, the USEPA Region II, and NJDEP prior to the initiation of any fieldwork. Any modifications to the Plan shall be submitted to the REMEDIAL DESIGNER prior to construction. The GROUP'S REPRESENTATIVE, the USEPA, and/or NJDEP may comment on the CONTRACTOR's Site-specific Health and Safety Plan and any modifications thereto in addition to the REMEDIAL DESIGNER, but will not provide approval of the Site-specific Health and Safety Plan. The CONTRACTOR shall not mobilize to the Site until the plan has been received and addressed review comments on it from the GROUP'S REPRESENTATIVE, REMEDIAL DESIGNER, the USEPA, and NJDEP, unless otherwise approved by the GROUP'S REPRESENTATIVE.
- D. Training requirements of all field personnel shall be specified in the Site-specific Health and Safety Plan. As a minimum, training in accordance with 29 CFR 1910.120 will be required for all personnel involved in intrusive activities (i.e., all below grade work and all grading and handling of soil or waste materials) and until all waste material is satisfactorily covered with 12 inches of soil or equivalent. Such training will also be required, at a minimum, for all crews who could be exposed to potentially hazardous materials during tie-ins, connections, and testing. Non-hazardous above-grade work (e.g., paving, seeding, signage) may not require 40-hour hazardous waste operations training, dependant upon proximity to exposed wastes.
- E. To assist in preparation of the Site-specific Health and Safety Plan, the CONTRACTOR is encouraged to review existing Site documents including, but not limited to, the PJP Landfill Record of Decision (1995) and Statement of Work (1997) available from the GROUP'S REPRESENTATIVE or Public Repositories, for the CONTRACTOR's inspection.
- F. The Site-specific Health and Safety Plan shall, at a minimum, include the following:
1. Identification of the HSO and the SHSC.
 2. Monitoring of the worker's breathing zone and upwind and downwind of the work area for organic vapors and respirable dust.
 3. Action levels for upgrading personal protective equipment (PPE) or implementing engineering controls shall be determined by the CONTRACTOR and explained in the Site-specific Health and Safety Plan consistent with assuring health and safety of construction workers and potential on-site and off-site receptors.

4. The Work to be performed at the Site may, on occasion, need to be conducted in Level C or B PPE. The CONTRACTOR shall provide PPE for all personnel, who demonstrate they have the proper updated training for use of such equipment. The CONTRACTOR shall provide decontamination stations and shall maintain the stations daily during the Contract period. The CONTRACTOR shall provide receptacles for and disposal of all PPE used on-Site. PPE may be disposed of in accordance with the requirements for debris and waste soil disposal described in the Contract Documents. Used PPE shall be placed in appropriate containers or drums for off-site disposal.
5. A requirement that the CONTRACTOR always maintain at least one (1) person on-site trained in first aid and CPR.
6. Emergency phone numbers for the local hospital, ambulance service, police, and fire company shall be posted in conspicuous locations on-Site. A map showing the location of the nearest hospital and the most direct route to the hospital shall also be posted in conspicuous locations on-site.
7. Names and telephone numbers of emergency contacts for the CONTRACTOR and the GROUP'S REPRESENTATIVE shall be provided.
8. Contingency Plan describing medical emergency response, fire and explosion response, chemical exposure first aid, unforeseen circumstances, accident and incident reporting and emergency contacts.
9. An evaluation of potential site hazards.
10. Applicable material safety data sheets.
11. The Health and Safety Plan shall follow the general outline as provided in Attachment 01564-1 herein that contains the minimum elements for the Health and Safety Plan.
12. A Decontamination Plan, developed in conjunction with the Health and Safety Plan in accordance with Section 01300 – Submittals, of these Specifications. The Decontamination Plan shall include:
 - a) Description of the procedures and materials used for the decontamination of all equipment that will be in contact with hazardous materials or media containing hazardous materials (i.e., soil, groundwater). Equipment would include such items as drill rigs, trucks, sampling equipment, field instruments, and hand-tools;
 - b) No decontamination pad is currently available on-site. The Plan shall include a description and Site map showing the location of a temporary decontamination pad. The decontamination pad shall be constructed to collect all decontamination water for subsequent testing and disposal and be maintained throughout the construction period. Water supply must be provided, transported, and stored by the CONTRACTOR to the decontamination pad location.
 - c) Description of the procedures used to characterize, contain, store, and dispose of wash water and personal protective equipment used during decontamination procedures.
13. Listing of Local, State, and Federal agencies and nearby residents that will be contacted in the event an accident occurs that could potentially harm or threaten the health and safety of the CONTRACTOR's personnel, the general public, or the environment. The list should note

which, if any, residents who may require special physical assistance in the event of an evacuation.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.01 RECORDKEEPING

- A. All parties engaged in on-site activities shall read the CONTRACTOR's Site-specific Health and Safety Plan for the relevant tasks. The CONTRACTOR shall maintain documentation demonstrating compliance with this requirement on-Site. Written evidence of compliance with 29 CFR 1910.120 and applicable State and Federal requirements, for all parties engaged in on-Site activities, shall be maintained on-Site in the CONTRACTOR's files. Copies of such documentation shall be provided to the REMEDIAL DESIGNER and the GROUP'S REPRESENTATIVE.

*****END OF SECTION*****